AMERICAN BEE JOURNAL

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The Distribution of American Foulbrood

By M. G. Dadant

THERE seems to be a great deal of uncertainty as to the degree of prevalence of American foulbrood in the United States and Canada, and the efforts that are being made to combat it on the part of the several states and provinces. Especially is there question in many beekeepers' minds as to whether the efforts that are being made to overcome American foulbrood are meeting with the success they should. In other words, are we coming to a successful solution of the problem of combatting American foulbrood, or is the work that is being done in vain?

The writer, in order to get first-hand information on this subject, sent a questionnaire to the officials in charge of foulbrood eradication in the different provinces of Canada and in the states of the United States, and is presenting in this article the data received therefrom.

Laws of the States

I was surprised to find that three of the states of the Union still have no laws concerning foulbrood and its eradication. These are Virginia, Arkansas and Delaware.

There are a number of states which lack power in their laws or have not sufficient appropriation to carry on any efficient work. Among these are Oklahoma, Nebraska, Idaho, North Carolina, New Hampshire, Maine, Missouri and West Virginia.

Three states are operating under the old plan of county inspection only. In other words, there is a state law, but bee inspection is done by counties, and the inspectors are appointed by the county commissioners, there being no centralized control. These three states are Oregon, New Mexico and California.

Practically all the balance of the states have more or less effective laws, and more or less efficient appropriations for their carrying out.

Of this larger group of states, about three-fourths of the number carry out their work through the State Boards of Agriculture, or Directors of Agriculture, whereas two-fifths of the work is carried on by the State Entomologists, or State Plant Board offices.

In most instances the most efficiency is gotten from the states operating either under the State Entomologists or State Plant Boards, because these are less apt to be removed or disturbed through political changes, etc.

However, this is not universal, there being a number of states where the bee inspector is appointed either by the Governor or by the Director of Agriculture, which are doing very efficient work.

There are a few states in which beekeeping in box-hives is prohibited either entirely or in such areas as are infected by American foulbrood.

Twenty-five states, at least, require certificates before bees on combs may enter into the state.

Four states require the registering of beekeepers.

At least five states in the United States prohibit the importation of bees on combs, and all of the Canadian provinces do similarly.

In the states where there are foulbrood laws, in practically all instances, penalties are provided for evasion, or for not carrying out the suggestions of the bee inspector.

We have two states in the Union which provide penalty for the spraying of fruit trees while in bloom. These are Colorado and New York.

Manitoba, in Canada, has a similar provision.

Funds Available, and Their Expenditure

The amount of funds available for the combatting of American foulbrood in the different states varies from practically nothing to as high as $18,000.00 per year for this work.

Some of the states ranging in the largest amount for eradication work are as follows: Illinois, $18,000.00; Michigan, $15,000.00; Wisconsin, $10,500.00; Ohio, $10,000.00; Texas, $10,000.00; Florida, $10,000.00; New York, $5,000.00 to $10,000.00; Wyoming, $8,000.00.

In addition, there are a number of states operating through State Plant Boards, in the South especially, which have available practically all the funds that are required for efficient inspection.

In most states the amount of funds is provided by statute, but there are a number, like California, where the inspection department is dependent entirely upon a board of supervisors, or other set of officials, as to the amount to be expended. In many states the inspectors become inoperative because the laws still provide for the wage of as low as $3.00 for inspectors, so that suitable inspectors cannot be provided.

We might state, however, in passing, that a great deal of help is given inspectors by the cooperation of beekeepers in several states, who are ready and willing to go out of their way to help the inspectors get efficient inspection. It has in many instances been the cause of efficient inspection in states where the funds available would have been greatly insufficient.

Bee Disease Itself

In 1925 there were inspected in the United States practically six hundred thousand colonies of bees, of

which some thirty thousand were diseased. The percentage of infection, therefore, amounted to about five per cent.

We present herewith a map showing the amount of infection as given by the inspectors of the several states.

There are, unfortunately, a number of states which do not have data available, or which have no provision for coordinated inspection work, which might be placed in a higher class if this were provided and complete data available. This is true in the case especially of Idaho, which has had inspection for several years, but no official inspection, simply the work of different beekeepers who are doing this work so as to alleviate the disease situation.

A number of states, also, may appear to have a far greater percentage of disease than they really have. This is especially so in the case of Ohio, which shows large infection. This is largely due to the fact that 1925 was the first year of really efficient inspection work in Ohio and the inspectors concentrated all of their efforts upon the worst areas in the state. Undoubtedly another year or two will show a great change in Ohio in amount of infection.

Missouri is probably one of the very worst states in the Union, showing an infection of seventeen per cent. Two years ago they did some fairly efficient work there, but the appropriation was, a year later, cut off, and the results can be very readily seen. Not only that, but the work of the past two years will be entirely lost, unless the Missouri beekeepers can get together and get a real inspection appropriation.

Eradication work is not carried on in specific way common to the several states. The states, however, which are accomplishing the most are probably doing so by the area clean-up method that is answering calls where inspection is requested in the entire state, but concentrating their efforts to a complete area clean-up as they go along.

A second method of inspection which has worked very well is for the county association to recommend inspectors in their several districts and the county inspectors to be examined and deputized by the chief, and operate under him. This method is working well in Illinois and other states.

As stated before, there are three states in which the county plan is relied upon. This has not proven satisfactory, simply from the reason that there is no supervision over the county inspection.

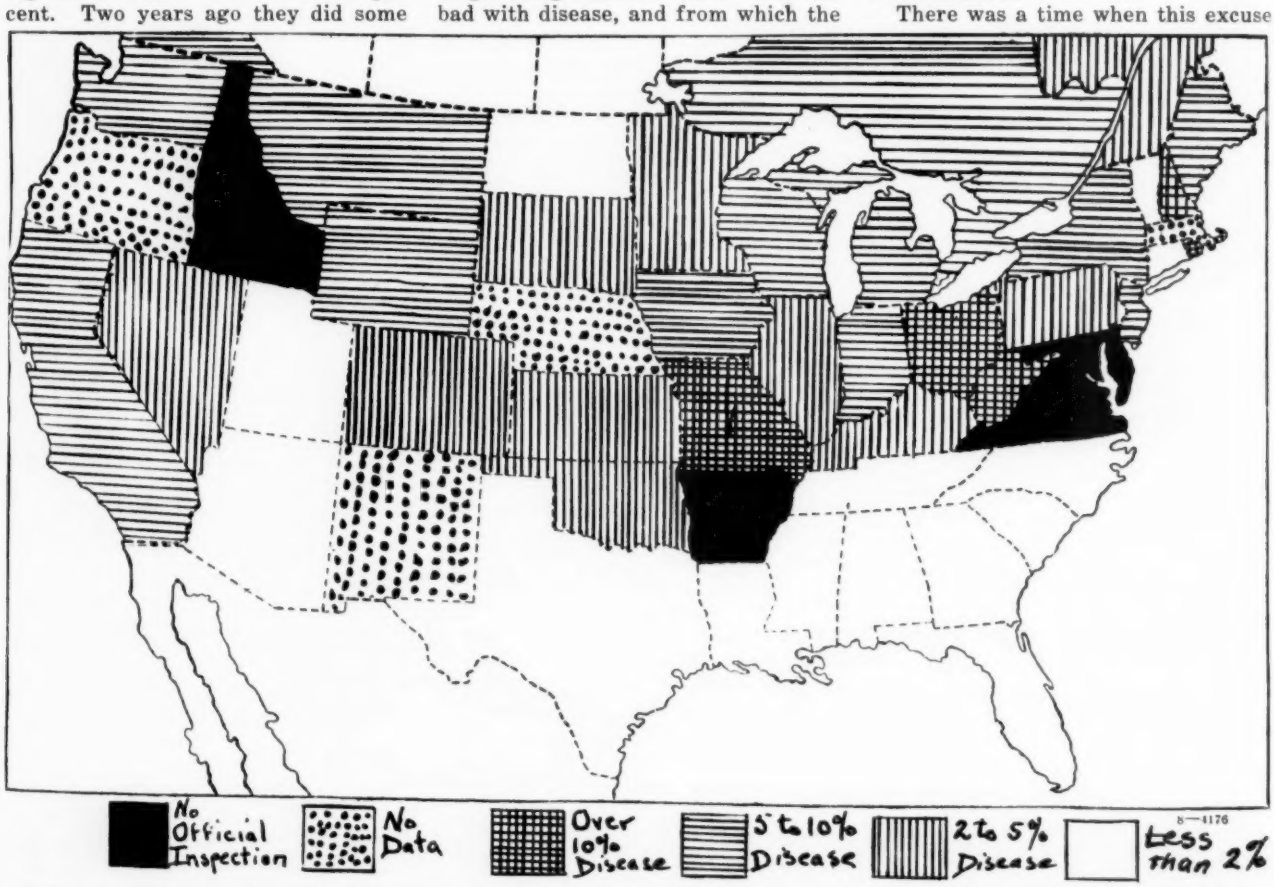
As a result, some counties where there are efficient inspectors are getting desirable work, but there are neighboring counties which are still bad with disease, and from which the disease spreads rapidly to the nearby counties. California has had a good deal of this situation to meet, and is just now considering a revision over the entire state.

We believe that on examining the map the reader will find that the results of foulbrood inspection have been very gratifying. The pleasing results are especially noticed in the southern queen and bee shipping states, practically all of which are now in the class showing less than two per cent disease.

The second lot of states which show gratifying results is the big honey-producing states of the West. With the exception of California and possibly Oregon and New Mexico, all under the county inspection system, we do not believe the time is far distant when all other states will also rank with those showing less than two per cent infection. This is especially so in the case of Nevada, Wyoming and Montana, which are taking a real interest in the work and rapidly cleaning up. Colorado has also reduced the amount of infection materially in the last three years.

As a matter of fact, we are now in a position where the central west and eastern states will have to look to some other excuse besides the importation of diseased honey and diseased bees as a reason for foulbrood dissemination.

There was a time when this excuse



Figures used vary with completeness of data and methods of inspection. Comparisons between states are therefore difficult.

could very readily be given, but the time seems now to be past.

It behooves the central western and eastern states to make an efficient campaign toward eradication, or there will be a "kick-back" on the part of the South and West in an effort to get disease eradication in these areas.

Successful Solution of the Problem

After careful study of reports coming in from inspectors in these widely separated areas, it appears to the writer that at the present rate of progress it will not be many years until the percentage of disease is reduced in the United States and Canada to an amount of, say, two to three per cent.

When it comes to getting below that amount, however, the cost of inspection appears to rise in proportion to the number of colonies inspected and there is a question whether complete eradication can ever take place under present methods.

With this end in view, the writer asked specifically of the inspectors as to what method of successful foulbrood eradication could be best used.

The answers were far from alike. In fact, they varied widely, as you can see by the following: Federal aid was urged by three; cooperation of states by six; strict quarantine by five; area clean-up by five; continued inspection by one; certified honey by three; commercial necessity by one; registration by two; compelling removable-frame hives by one; education by two; burning up by two; better laws by three; research by one; adequate funds by two.

From this it can be seen that there is a very wide variance in ideas as to just what will make for a complete eradication of American foulbrood.

There is one thing, however, that is self-evident and runs through the answers as submitted by the different inspectors, and this is that undoubtedly there will never be a complete eradication if there is a lack of interest on the part of the beekeeper. In other words, it appears that when the amount of disease begins to lessen in the state the interest on the part of the beekeeper also begins to slacken, and the general result is that the general appropriations are cut off, or cut, and foulbrood again begins to increase.

Idaho is an example of one of the states in which the beekeepers have not shown sufficient interest to get an efficient appropriation. Undoubtedly, with the cooperative effort of all the beekeepers in that state, it would not be difficult to get the inspection needed, because Idaho is a big honey-producing and honey-shipping state, and its legislators should most certainly be glad to cooperate with any real needed work, if it were shown them in the right light.

Summary

Although it may be presuming on the part of the writer to offer any personal suggestions in connection with the article, rather than let the reader draw his own conclusion, there are some points which we believe should be made and which may be of interest.

In the first place, it would not appear, with the extremely small amount of infection in the southern states, that the recent laws for the prohibition of importation of bees on combs are justified. We must not lose track of the fact, however, that the southern states are not the only states from which importations are made, and that more than likely the restrictions are aimed at the prohibition of the shipment into the several states of the bees of homesteaders and others, as well as shipments of nuclei, etc., from some of the states a little farther north, which are not as well cleaned up of disease as the southern states.

We might argue that a certificate from the chief inspector of the state from which shipment is made should be sufficient.

However, anyone who is cognizant with American foulbrood will readily understand that it will not be difficult to hide a small amount of disease in an apiary, from the inspector, in order to get a certificate of inspection when moving an entire apiary to a new location or to another state.

Such states as North Dakota, Montana, and others which are becoming increasingly populous in bee colonies, have to watch this point if they wish to avoid new sources of infection as homesteaders come in.

While the laws of several states might be made very much more severe than at present, we question whether this is going to make any great difference in the prevalence of disease. It is true, however, that the amount of money available for inspection purposes makes a large difference, and if education is combined with inspection work the results are at once seen.

For instance, the work of the state of Iowa has been done practically entirely through education, there being only available a fund of $1,500 for inspection work for this entire state, which has a large number of commercial beekeepers as well as many smaller ones. Undoubtedly, education has gotten in its work there.

In conclusion, we might state that one of the drawbacks which is going to hinder the entire clean-up of foulbrood in this country is the natural apathy on the part of the individual beekeepers, who are very slow to cooperate with each other, not only along disease eradication lines, but along marketing and other lines as well. This is bound to slow up the inspection work, because the necessary support is not given for the work before the legislators of the state.

A second point, which would undoubtedly help greatly with the furthering of adequate inspection work, is cooperation between inspectors.

If every inspector was notified of shipments coming into his state from other states, even though these were certified, he would then be in a much better condition to do adequate inspection himself. Not only this, but frequent meeting of these inspectors together, or correspondence, would undoubtedly reveal points which should be of great benefit.

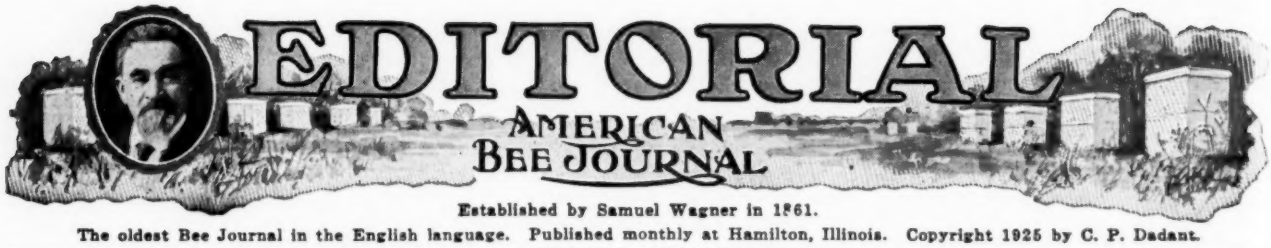
Perhaps one of our reporters was not far out of the way when he insisted that research is what we need in disease eradication, and it might be that we are going the long way around in accomplishing the results desired. Perhaps. But in the meantime we must carry on.

The especially redeeming features of the eradication program are the rapid progress on the part of the southern states, and of the western states as well.

Whether it will take some drastic action such as laws requiring the certification of honey on the part of the several states, or on the part of the Federal Government, remains to be seen. We are inclined to believe that the progress in disease eradication is going to be very slow, indeed, after the percentage drops as low as three per cent in the several states, unless we reform, cooperate and all go forward together. Already some southern and western states have excluded the shipment of bees on combs from outside.

Nobody wants honey certification; but suppose in over anxiety, in retaliation or through misdirected legislation, only two states, Illinois and New York, should demand it, would we be ready? What would you do, Mr. Idaho Beekeeper, or California, or New Mexico, or Iowa, or Michigan? Isn't it high time we really made a concerted effort, not to combat certification, but to make it unnecessary?

Aren't you willing to admit that our present agitation is because of our past apathy?



Established by Samuel Wagner in 1861.

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The Langstroth Frame

In Gleanings for August, page 530, W. A. Chrysler states that many people incorrectly name the Langstroth frame "Hoffman." He is right, for the Hoffman frame is only a variation of the Langstroth, and the idea used by Hoffman of making the frames wide enough near the top to fasten them together is applied to all sorts of frames. But all the frames which he mentions are also Langstroth frames, whether they are Quinby, Jumbo, Dadant, or Modified Dadant, for they all embody the principle of the hanging frame which Mr. Langstroth invented.

Death From the Effects of a Sting

"I have just received the August number of the American Bee Journal, and in reading it I see that beekeeping is said to lengthen life. I might add that it may shorten it also, for my young daughter, aged 13, died in twenty minutes of the effects of a single sting. It was evidently an accident, but how can we combat and overcome the effect of such a sting? That is what I wish to ask."

F. X. Dube, St. Bruno, Quebec.

This is certainly regrettable. Is there any way to foresee such an accident and prevent it? We are under the impression that the young lady must have been suffering from heart trouble and that the sting was just the determining cause of the fatal ending. However, some people suggest that a sting on an artery may cause death. If such result was feared it might be well to administer an antidote. Five to twenty drops of ammonia in water would help considerably, if taken internally as soon as serious symptoms develop.

Discussing Versus Arguing

Regarding some heated arguments in one of our bee magazines, a reader of them writes us:

"Too much rough stuff on both sides will not do. It would be better if beekeepers would discuss a question quietly, not "argue it," for excited arguments are not good, especially when both fellows talk at once and neither listens to what the other says."

We have generally succeeded in keeping all "rough stuff" out of the American Bee Journal, and propose to do so right along.

Granulation of Honey

The "Canadian Poultry World," for June, contains an article explaining that, in New Zealand, they refrigerate their honey in order to secure its granulation. They explain that in warm countries honey does not granulate readily, so in Madrid, Spain, Senor Trigo installed a cold chamber, cooled by means of a small ammonia compressor constructed by Sulzer, in the building of S. A. La Moderna Apicultura, at Madrid.

They say that honey crystallized by this process acquires a firmness of grain which cannot be obtained in any other way.

So here we are, trying to prevent our honey from granulating and ashamed apparently of its granulation, so that the consuming public has acquired the idea that granulated honey is impure, while in other countries they go to some trouble to cause it to granulate. I do not know how you like the taste of granulated honey, but we like it much better than the liquid. It is certainly worth while for our beekeepers to educate the public. It can be done; it will save us a great deal of labor and worry when we have informed the consumer that honey does granulate in cold weather and is not damaged by the change.

Cucumbers and Fertilization

An article in the British Bee Journal of July 15 indicates that it is considered by English gardeners that the fertilization of the flower is not necessary to produce cucumbers, but that those that are not fertilized produce seedless fruit. So they recommend to remove the male blossoms. How is this? Do not our horticulturists consider that without fertilization there will be no fruit? If such is not the case, why do the hot-house cucumbers need bees to fertilize them?

Since writing the above, we decided that it would be well to enquire from people who have experience. So we wrote to Blackman Brothers, Nevada, Iowa, who are producers of honey and vegetables and who run a greenhouse. The following is their reply. We wish to add that, in December, 1912, an article from Louis Scholl, of Texas, was published in the American Bee Journal, page 365-6, showing by a diagram that fruit does not form normally unless the ovule is fertilized.

Any further light upon this subject will be welcome. The Blackman letter follows:

Nevada, Iowa, July 31, 1926.

We have grown cucumbers in greenhouse and field, and our understanding has always been that they could not bear unless fertilized by bees or some other insect. In greenhouses we know the blossoms fail entirely or make nubbins only unless we get the bees at work on the bloom, and I do not believe it is possible to produce a perfect cucumber without seeds—at least I never saw one. Am not sure about nubbins, but think they also have a few seeds. Very truly,

T. W. Blackman.

Still later. We receive the following from a friend, Mr. O. J. Price, of Terre Haute:

I have made inquiry concerning the English method of propagating cucumbers. I find that their methods are very different from ours. They remove the male blossoms from all fruiting areas from which cucumbers are to be marketed, the unfertilized female blossoms producing parthenogenetically—a peculiarity not uncommon to cucurbits. Seed plants are isolated and hand-pollinated.

After my investigating in the library concerning this matter, I talked to my friend and neighbor, Mr. Keith Owen, manager of the eleven-acre cucumber greenhouses nearby. He returned last month from the Smithfield district of England, where he studied the practices, and says that the English cucumber is a superior type and is produced as I have suggested.

From Russia

The "Experiment Apiary" magazine of the Tula Experiment Station of Tula, Russia, in its June number,

reproduces the portraits of C. P. Dadant and wife, given in our April number.

Running over the pages of this magazine, we wish we could read Russian as well as those Russian experimenters read our English or our French. The subjects treated in this number are, besides a short biography of C. P. D.: Organization of the Experimental Work; Conference Between Tula and Moscow Experiment Stations; Studies of Nosema Disease; Comparison of Winter Losses and Nosema Infection; Sacbrood and Its Control; Bees and Flowers; Mendelism and Beekeeping; Translation of Hambleton's Effect of Weather upon Change in Weight of Colonies; Nosema and Productiveness of Colonies; Talks to Beginners; Salycilic Acid in Beekeeping; Utility of the Sun-Wax-Extractor; Beekeepers of Ukrain; Tariff-free Sugar for Beekeepers; Boleff Beekeepers' Association; Beekeeping in Lettonia; Chronicle; Bibliography, and Questions and Answers.

Beekeepers on the Recovery of the Franc

The Administrative Committee of the Society of Apiculture of Burgundy voted 100 francs to be donated towards the recovery of the value of the franc. (Abeille Bourguignonne for July, 1926.) The Society of Apiculture of Alpes Maritimes voted 200 francs for the same object. (Bulletin of Apiculture of Alpes Maritimes for June, 1926.) Similar associations in different directions voted similar sums.

Those are small amounts, but their donations show the desire of all the French, beekeepers included, to see the franc come back to par. The difficulties are great and those amounts, even if much larger, could not bring the franc back to its normal value until there is a reduction in the amount of paper currency. It is a repetition, but under worse conditions, of our own experience here in the United States after the Civil War. It took fourteen years to return to "specie payments." It may take twenty years or more over there. They have our sympathy.

Amoeba Disease of Adult Bees

We have not yet had satisfactory evidence that the May disease, so called, of the honeybee, is brought about by either the Tarsonemus or the Nosema. But here comes another discovery which may give us a solution of the riddle. It is an "amoeba" invasion of the Malpighian tubes, the thread-like tubes that are found just back of the digesting stomach of the bee. It was Maassen and Morgenthaler, both Europeans, who first described this trouble, and a description of it is given in the "Bee World," translated from Professor D. H. Prell by Miss Annie D. Betts, who is proving so efficient a student of scientific questions connected with the honeybee. If this matter proves as important as it appears, we will give our readers further information. It is suggested that this may be the "disappearing disease," so often mentioned in spring. Professor Prell calls this "amoeba" "Malpighamoeba mellificae."

An "amoeba" is a protozoan or "a primary division of the animal kingdom" reproducing by fission, gemmation or spores, a very low specimen of life.

Foreign Opinions

The "Bee World" for June-July contains an article from a New Zealander, Mr. W. B. Bray, criticizing the methods of Europe and comparing them with those of America. He says that uniformity and simplicity of standards in hive-making are the rule in America, while the products of the British manufacturers are "inefficient," each making a style of his own. This seems to be true all over Europe, each maker having a different pattern, and we find also that beekeepers, instead of using one kind of hive, have some of the several different kinds that are offered. It must be very inconvenient not to have all hives in one style. The writer in question appears to be of the opinion that British beekeepers are all amateurs. He resumes his argument in the statement: "The British keep bees and the American makes the bees keep him." There is probably some truth in it.

On the other hand, we must not forget that most of the initial progress was brought over from Europe. We make the best extractors, but the ideas of extractors were European. We make more comb foundation than the Europeans do, but the initial work in foundation making was European. In science they have been ahead of us, even if we have taken the lead in practical things.

The Length of the Tongue

A. S. Mikhailoff, the Russian student at Tula's Experiment Station, claims that the length of the proboscis of the bee depends upon the latitude at which the race lives, that the bee living in a northern country has a shorter tongue than those of the South. Miss Annie D. Betts, the learned author of "Practical Anatomy," in the Bee World explains that Mikhailoff thinks it is due to the fact that in northern countries flowers contain more nectar, and that the southern bee must have a longer tongue if she is to survive. Miss Betts also says that Russia and the United States are, more than any other countries, able to extend their search of this matter over a wide range of territory and thus have opportunities which are denied to others.

The Tarsonemus Woodi on This Side of Ocean

Dr. O. Morgenthaler, of the Bacteriological Institute of Liebefeld, at Berne, Switzerland, writes to "L'Abeille" of Quebec that the Acarapis, or Tarsonemus woodi, was found in one of the samples of dead bees sent to him from Canada by Mr. Vaillancourt, of the Ministry of Agriculture of Quebec.

If this finding is correct, it would explain why we sometimes see a disease, commonly called "paralysis," in American apiaries, which has not yet been classified as to its cause, and which has all the earmarks of the acarian disease, commonly called "Isle-of-Wight disease." But the disease is never so dangerous in this country or in Switzerland as it has proved to be in the British Isles.

Corn Sugar

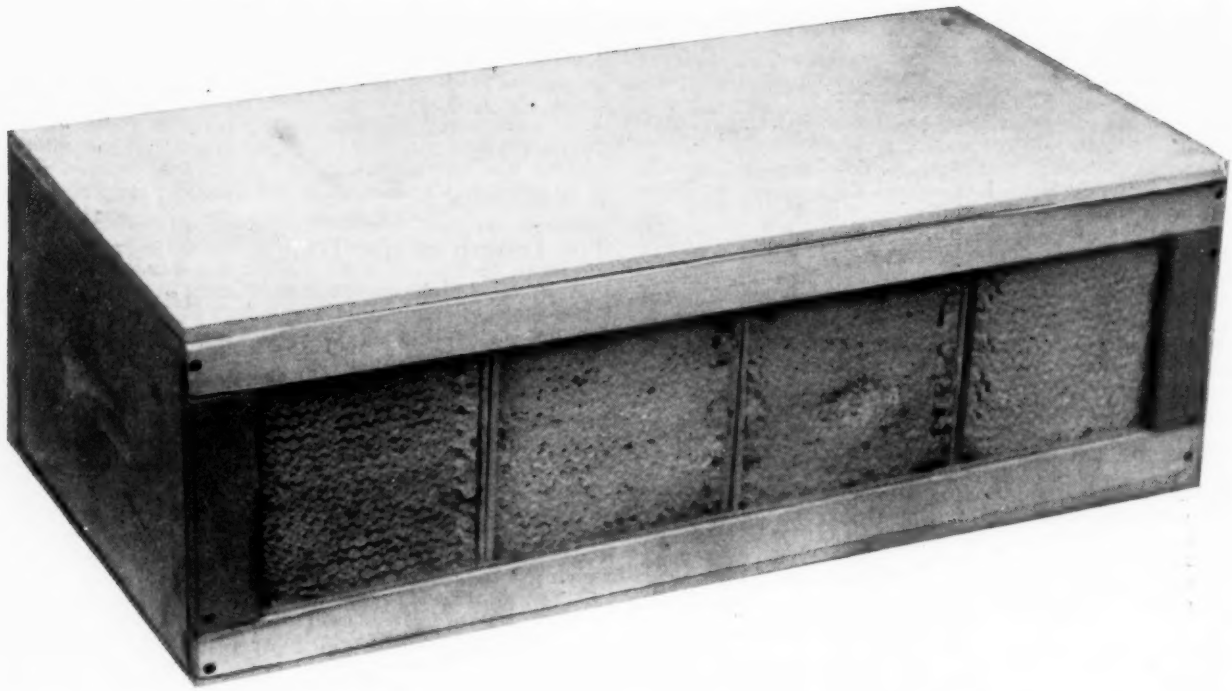
Have you had a sample of the new "corn sugar"? It is absolutely like the real cane sugar, in appearance; at least it seems so to me. But it appears to be "blank" when you taste it; that is, it does not fill the mouth with sweetness as does real sugar. The supporters of this sugar acknowledge that it is less sweet than real sugar. I don't believe it is half as sweet. But it will get a big boost from those who think the farmer should be helped, willy-nilly, to sell his crop of corn. How much more corn can be sold, if this sugar becomes popular? We beekeepers don't want it to be compared with honey. It is nowhere in comparison.

Registering Apiaries

Some of our states are making laws to secure the registering of apiaries. It may be interesting to know that New Zealand has such a law. The "New Zealand Fruit Grower" is authority for the statement that there are in New Zealand 6,300 apiaries with about 90,000 hives of bees.

Split Sections for Comb Honey

Concerning the testimony of Mr. Pellett describing the Coppins' success in producing the nicest possible comb honey, in this issue, I can testify to its correctness. I was judge of the honey exhibit at the Illinois State Fair, two seasons, and found it impossible to award the first premium on comb honey to anybody else, as the Coppin comb honey was positively superior to anything else on exhibition.



From Coal Mining to Beekeeping

How an Illinois Miner Found Pleasure and Profit in the Production of Fancy Comb Honey

By Frank C. Pellett

TO win first prize in a closely contested division at a state fair is an achievement worth while. To do so continuously for more than a quarter of a century at the same fair is most extraordinary and marks the winner as a master producer.

Aaron Coppin, of Wenona, however, is an exception to all rules, for he has won the blue ribbon on comb honey, at the Illinois State Fair, for twenty-six years. Comb honey production is a fine art, in which only a few beekeepers become highly proficient. To win first place year after year certainly entitles Coppin to recognition as one of the master beekeepers of America.

Mr. Coppin, however, has a decided advantage in the fact that Mrs. Coppin is also an enthusiastic follower of the craft. Probably it would have been more correct to have said "The Coppins" rather than to say Aaron Coppin, except for the fact that she probably did not have a part with him in the coal mining. The partnership began above the ground. They do work together in the production of fancy honey and in its preparation for exhibition or for sale. The picture shows the two of them in the apiary, which is shaded by an arbor covered with grapevines. There is no worry about division of credit in a successful partnership, so whatever I may say about the success of the Coppin enterprise applies to them both.

A man like Coppin, who loves life and color, must have found the hours long amid the blackness and grime.

This novel hive in the front yard attracts the attention of the passerby

Even the progress from coal digger to mine inspector did not satisfy him. He wanted something alive with which to occupy his leisure hours above ground, and he found it in the bees. It is forty-four years since he secured his first bees, and from that day to this he enjoyed the happiness that comes only to the man who has found his proper work.

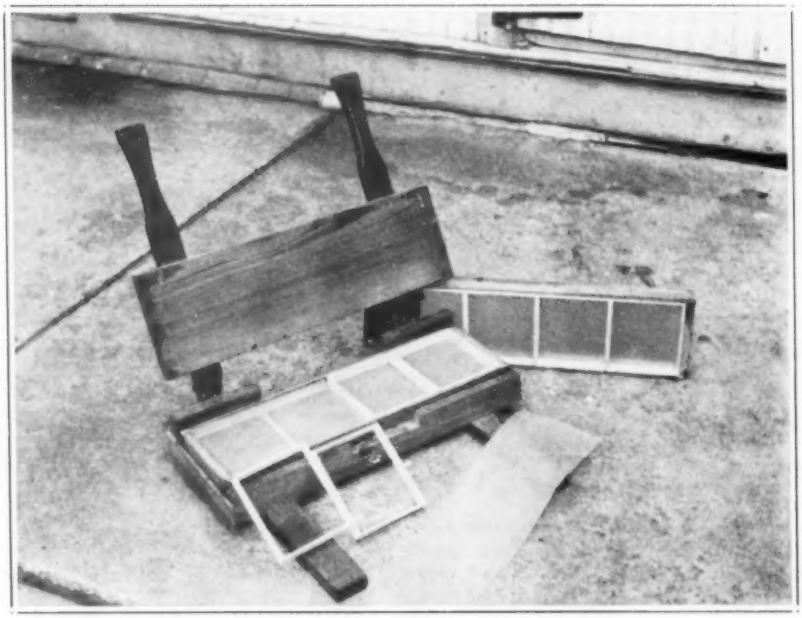
A Life of Contrast

No one could visit the Coppin home and see the well-kept apiary, the crop of the finest comb honey and the surroundings amid which it is produced and doubt for a minute that the owner has found the right environment. It would be hard to imagine a greater contrast than that furnished by the well-kept lawn, the beautiful flowers and the apiary in which Coppin now spends his time, and the darkness, dust and smut amid which he worked so many years in the mines.

Many a time did he lighten the tedium of labor in the darkness deep in the earth by dreaming of his bees as he dug the coal. After he found a small measure of success with the bees and began to realize the possibilities of honey production, he saw his way out of the mines into the kind of life he loved. From that

time on the progress toward a definite goal was steady and sure until the apiary had been built up to the point where it offered ample support for his family. Many of the most successful beekeepers have grown into the business in this very gradual manner.

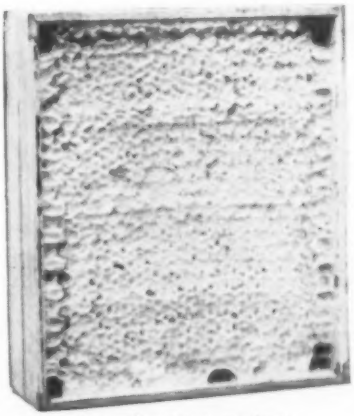
The Coppin apiary is not an extensive one. Rather has success come through intensive methods resulting in a fancy product which commands the top price. It is always easier to sell anything of the best quality at a fancy price than to sell an indifferent product at a low price. "Quality First" goods never wait long for a market and the price is usually a secondary consideration to the buyer. Coppin honey has been known for quality for many years past. Much of the honey shown in the Illinois exhibit at the World's Fair held at Chicago in 1892 came from the Coppin apiaries.



Putting up the split sections

Selling Methods

The home and apiary are next to the public park which is used throughout the summer as a tourist camping place. Everything about the place is designed to attract the attention of those who pass by. A big sign which reads "Honey for Sale" faces the road and another the park. In all my travels I have never seen such signs used by beekeepers. The letters are made by growing plants. Green plants are used for all the letters except the first letter of each word. For these, plants with variegated foliage are used, making a most unusual effect. One would be blind indeed to pass this place without seeing it and noting the nature of the owner's business. A novel hive of fantastic design, which is painted white, stands in the front yard. With the bees busily flying to and from the field it adds a bit of charm. While these things call attention to the fact that honey is for sale, they lack the disfiguring elements of ordinary painted signs. The growing plants and the hive are an ornament to any lawn. All painted signs are on the honey house at the rear. The house and grounds are as neat and well kept as the apiary and everything about the entire place. The visitor receives a good impression of everything connected with honey production and is likely to carry away a good supply of the product.

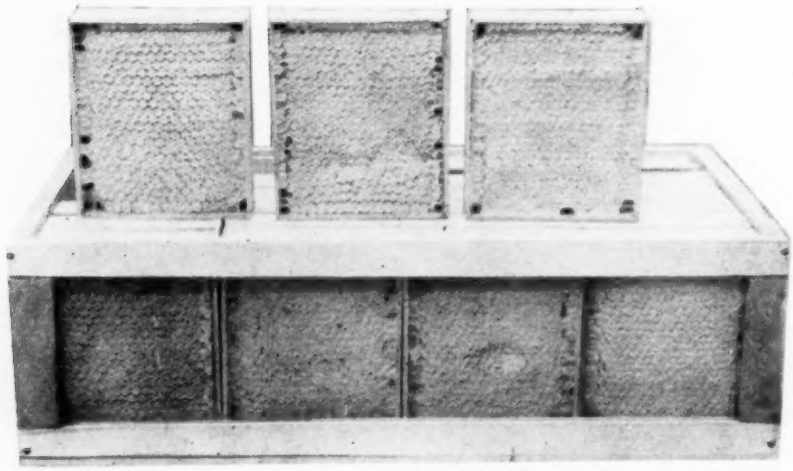


A quality first product

By departing from the kind of advertising in common use the effect produced is much greater, while retaining all the beauty and attraction of a well-kept home. Selling is an art which many beekeepers never learn. Some men find it hard to sell a few hundred pounds of honey, while others sell carloads without difficulty. Coppin honey now has an established reputation which makes it easy to dispose of the crop. While much honey is sold at retail to customers who come to the house, a considerable quantity also goes to the fancy trade in Indianapolis and the southern states. In shipping, six cases of comb honey are crated together in a carrier, well packed with straw or hay to break the jar, and there is seldom any breakage in transit.

One has only to visit an important honey market and see how much poorly graded honey is sent there, to appreciate the need of more care

Mr. and Mrs. Coppin work together to make the business of honey production a real pleasure as well as a source of livelihood



Coppin's fancy honey as it goes to market

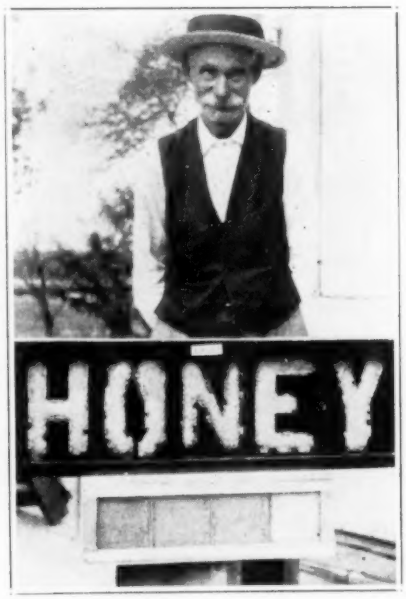
in packing and shipping. If only the best honey was shipped to market, as Coppin does, and the cull stuff sold in bulk to the peddlers who demand low price regardless of anything else, our honey markets would be much more satisfactory.

Getting a Fancy Section

The Miller plan of using two eight-frame bodies for building up the colonies is followed in the Coppin apiary. When the honeyflow starts, eight frames which contain the most brood are placed in one body with all the bees. Comb honey supers are then given and the big working force is ready for business. Such brood as is left over is given to weak colonies or used for the making of increase.

Comb honey is produced in a special section that I have seen in use nowhere else. It is 4¼x5 inches in size and 1¼ inches wide. It is split clear through, thus making two separate strips for each section, which are put together by means of the special press shown in the picture. The section holder is a frame of just the right size to hold four of these sections, which are wedged in place. Half of each section is put in place in the press. Over this is laid a sheet of extra thin foundation the right size for four sections. The other half of each section is then put in place and the wedges driven tight by means of the press. So quickly and efficiently is the work done that this special section seems to require no more time in its preparation than the sections in common use. The picture shows a section holder with four sections in place, ready for the super. It also shows the press and the half sections as they are prepared for use.

The filled sections average about the same weight as the standard sections, but produce a larger percentage of fancy grade, which was the object of the originator in adopting them.



A honey sign built by the bees

Good Exhibits

I have already commented at length on Coppin's success as an exhibitor. While prizes are awarded on quality of product, the successful exhibitor must use some ingenuity in attracting attention to his showing. Those who have seen the Coppin exhibit at the Illinois State Fair will remember the frames of honey on which the bees have placed raised letters with such words as "Coppin Honey." One picture shows a big sign, "Honey," the letters of which are made by the bees. During the war he furnished a red cross sign made of honey for use in a Red Cross drive for funds. From a frame of sealed honey he uncapped a portion in the shape of a cross. Giving it back to a strong colony of bees, he then fed them heavily with honey of a red color, which they stored in the vacant cells and capped over again. Naturally, such a cross made by the bees attracted much attention. It is by such original methods that Coppin continues to qualify for first place. Judges may come and judges may go, but Coppin goes on getting the blue ribbon.

The beginner who looks forward to a competence from honey production will find much inspiration in a visit to the Coppin home. He has shown that it is not necessary to have a large investment or a specially favorable location to make a livelihood from bees. He has a beautiful home with all the comforts and luxuries which our present civilization demands. He has raised a family and started his children out on successful careers, and has laid aside something for the proverbial rainy day. Above all, he has found the kind of work which gives him joy in the doing and he excels in the quality of the output of his apiary.

Home, friends, family and congenial labor: what more can a man ask of life?

Beekeeping at the Royal Palace of Madrid

According to the "Revista de Apicultura" of Buenos Aires, the King of Spain takes great interest in bees. He has become interested in bees through an old schoolteacher, Father Isidore Hernando, who occupied himself with bees for years in his hours of leisure. So an apiary has been established on the grounds of the palace, in which the Princes Juan and Gonzalo devote themselves to the pleasures of beekeeping. The Prince of Asturias has had a glass hive erected, so that he may study the bees with more ease. Most of the honey consumed in the palace comes from the King's bees.

Canadian Honey Producers Want Crop Graded

Strong representations have been made to the Dominion Government at Ottawa, by a delegation of honey producers, requesting a grading law on honey, such as is now in force on eggs, butter and other products, according to the Toronto Globe. In recent years honey has become a staple product of Canada, and large amounts have been produced. Inasmuch as Canada is now preparing to enter the export trade in honey, the producers feel that they should be protected by a grading law.

Homing or Gregarious Instinct of Honeybees

By Allan Latham.

THE very fact that the honeybee cannot reason is correlated with the fact that it is a creature of instincts. Fortunate for us that it is not a reasoning animal, otherwise we could not control it; fortunate for the bee that it is not a reasoning animal, otherwise it would perish. Its very existence is most deeply dependent upon the fact that it is a creature of firmly intrenched instincts, all of which instincts serve to help this insect meet the difficulties of life.

Of all the instincts of the honeybee, none is more interesting than its gregarious instinct. Other animals have a gregarious instinct, but the bee has its peculiar own. Note the fact that in the case of most animals the females are gregarious, whereas the males are not. With many animals no two males can live in close proximity; they will fight till only one survives or flees to escape the victor. With the bee the males have absolutely no jealousy. They live together in perfect harmony; but the true females, the queens, act as would two tomcats. The imperfect females, the workers, do possess the instinct of seeking their own. Strangely contrasted with her animosity toward another queen is the queenbee's desire for the company of worker bees, and toward these imperfect females she does not feel the slightest antipathy.

The honeybee can be as lonesome as a human being. A beekeeper who has not observed the pleasure of a young bee which, lost, finds her way into the entrance of a colony has done little study of bee life. Dump a cupful of young bees upon the floor or into a large, empty box and watch them act. At first they run aimlessly about, but soon a bee begins to fan her wings. She has not found a home, but she is all nerved up and nervously gives her wings a flip. Instantly several bees about her begin to give the home signal, or homing sign. All the bees then start running together off to one corner of the box, or along a crack in the floor. They bunch together for a time, then again become nervous and run to another place or break into flight. If entirely lost, they will soon gather in another place about some bees giving the homing sign.

All have, of course, observed the homing sign. A bee stands on upstretched legs and fans her wings, bending at the same time the extremity of her abdomen. There are scent glands near the extremity of the abdomen, and as the wings vibrate the scent is thrown backward. Other bees catch the scent and follow the signaler, adding their scent to hers. This can always be seen in a marked degree whenever a swarm is hived. It is a wonderful sight to the uninitiated to watch the bees follow each other into the hive like a vast flock of sheep. Simple enough after we know how the matter is controlled, yet it never loses its charm even for the hardened beekeeper.

The queenbee possesses, if anything, a stronger homing instinct than does the worker. A lost queen will more quickly find her way into some colony than will a lost worker bee. Queen breeders have found this truth out many a time to their chagrin and loss.

It is a very common belief that the newly issuing swarm is wont to cluster about the queen, and it has more than once been taught that the queen controls the place where the swarm will cluster. This is only half a truth. It is doubtful if in the case of one swarm in a hundred does the swarm gather where the queen has alighted. In the case of a queen burdened with eggs, as with labored flight she quickly alights, or falls into the grass, the swarm may eventually cluster in that spot where the queen is forced to alight. In all normal cases the queen does not thus alight to stay, but keeps in the air or else pauses only a moment to rest upon a leaf. After the swarm has been out a minute or two it is the workers which determine where the swarm will cluster. Heavy with honey, they quickly tire and are very ready to alight. In the meantime the control bees are busy. By control bees I mean bees which are of that age and instinct that they are deeply concerned with the queen and her location. In every swarm there are a few hundred bees which are not heavy with honey, but have been in attendance upon the queen or have been seeking a new home for the expected swarm. These bees, which I have elected to call control bees, within a few minutes after a swarm issues or almost at once, even when the swarm is still issuing, begin nosing about likely places for the swarm to cluster. The dark forks of a cluster of small branches, the lichen-covered under surface of a large branch, a leafy bush,—some such thing will soon become a center of interest to these bees. Thousands of other bees are zigzagging in the air or resting upon the leaves of nearby trees, but these few bees alight and crazily rush about over their selected spot and start fanning their wings.

A number of such centers of interest may start at once. Watch and you will see the cloud of bees darken at one spot; again look and you will invariably see that the cloud is darkening about one of these centers of interest. Sometimes the swarm will for minutes, even half an hour, swirl from one center of interest to another, and the beekeeper gets impatient, as he is anxious to get the swarm hived and get back to his work. Why does the swarm not settle for good?

It is right here that the queen comes in. If she is a laying queen she almost at once elects one of the centers of interest and, alighting with the few fanning bees, her scent is immediately carried out into the swarming cloud of bees. They then rush pell-mell to the clustering place. If the queen is a virgin she may not care yet to alight, and plays about for a quarter of an hour before matters quiet down. No, it is very seldom that the queen selects the clustering place of a swarm, but her gregarious instinct is the deciding vote in the choice of the clustering place.

In my queen-rearing activities I use a small mating-box, and when I take up the young laying queens I am wont to shake bees and queen out into the grass or upon a soft square of cloth. The act of picking up the queen and caging her is very short and simple. At times, however, the queen takes flight and I fail to get her. I at once set the mating-box back on its stand with entrance closed. In a minute or so the queen will come back and then I can pick her up. I do not wait for her, but choose another box close by. Many a time I fail to find the queen returned. My procedure in that case is to shake all the little mating-boxes in close proximity the second time. I generally find the queen in a box from which the other queen has been taken a few minutes before.

I am inclined to the belief that the queenbee has rather poor eyesight, but does have a most sensitive power of smell. Thus the queen in her flight readily goes into a neighboring box where the bees are fan-

ning about the entrance, her picture of her own proper home being rather imperfect. Possibly I might better say that her instinct of seeking her worker sisters is so powerful that it completely overshadows her instinct to go where her eyes should direct her.

Absconding swarms are very prone to choose the entrance of another colony after they have deserted their own home, and the queen of an absconding swarm may find her way into another colony while her own bees are still in the air. In the season of swarming, when stray queens are not so infrequent as one might think, the queen breeder must be on the watch lest a stray queen gets in and cuts down a fine batch of cells for him. Having had this thing happen probably a score of times, I know whereof I speak.

In her mating excursions the queen probably uses her eyes very little. I am inclined to believe that she is led to the flight zones of drones by sense of smell. The drones, on the other hand, have well developed eyes and poor sense of smell. They do not seek the queen by sense of smell, as do so many insects, if we are to believe what we see, but, like the queen, gather where other drones are. Drones have so pronounced an odor that even a drone can smell it. Then when the queen arrives at the mating place she is soon spied by a drone and pursued. I cannot prove this, but having in my mating yards seen again and again evidence of it, I can see that it is probably true. The evidence is right here,—drones pursue each other. Many and many a time have I seen a drone chase another drone. Many and many a time have I seen a drone catch a drone. The two will stay clasped an instant and then separate. If sense of smell controlled the action of the drone, could this take place?

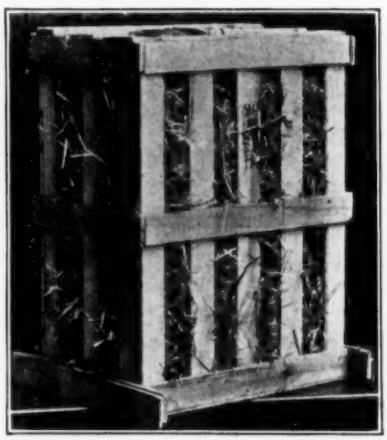
Mr. C. P. Dadant suggests in his footnote that his father, if alive, would take issue with me. He then cites the case of the queen released at one place and flying to the only place she had known as home, then returning to her new home through her power of reason. Too easy, Mr. Dadant, no argument here at all. The released queen not finding the nucleus where she had lived, and probably had issued to mate, at once became a lost queen. The queen has the gregarious instinct even more strongly than the other inmates of the hive. This queen at once is on the alert for the homing sign. Had the elder Dadant been working at that time upon several hives, the queen might easily have gone into any one of those hives. It is the custom, and was formerly, to shake bees in front of the hive when working about the colony. The bees shaken in front of any hive quickly start for the entrance giving the homing sign. It is not strange at all that the flying queen should catch the scent wafted into the air from the entrance of the hive where she had just been released. Simplest thing in the world. She was obeying the instinct which led her to take her place with bees fanning their wings and throwing the "follow me" scent.

How to Ship Comb Honey Safely

By E. W. Atkins

BECAUSE of excessive damage claims on comb honey shipments, the American Railway Express Company has made a recent ruling not to accept comb honey in paper unless properly packed in crates. This ruling is the result of careless packing.

Recently we conducted an investigation, with the cooperation of the American Railway Express Company, to ascertain if comb honey could be shipped with a reasonable degree of safety. The investigation showed that, in addition to the damage comb honey might receive in handling, the vibration caused by rapidly moving trains was sufficient to break the delicate comb cells. To test this, an official of the express company obtained cases of comb honey in which there were no damaged or leaking cells. He personally carried the honey to the express car and carefully set it in different positions on the floor of the car. Some was placed at the end of the car, over the trucks, and some in the center of the car. The effect of train vibration on the honey was then studied. At the end of a fifty-mile trip it was found that cells in many of the sections were cracked and honey had started to leak out. The position of the honey in the car made but little difference. The express company does everything possible to reduce train vibration, and locomotive engineers are not supposed to run their trains over switches more than thirty-five miles an hour.



Crate and pack for safe shipping

The careful grading of comb honey is also an important step in successful shipping of that fragile product. I shall always remember a demonstration given by Frank Rauchfuss, manager of the Colorado Honey Producers' Association, at one of the association's meetings, on the importance of carefully grading comb honey for safe shipping. He took one section of comb honey in which many of the cells, next to the wood of the section, were filled with honey and sealed over, and one in which none of the cells attached to the wood contained honey. In turn he held these sections flat in his hand and threw them up in the air about two feet and allowed them to drop on a table in front of him. The comb honey which contained cells filled with honey next to the wood stood this severe test without breaking out of the section. The other comb of honey entirely broke out of the section. Honey adjacent to the wood seems to have a cushion effect which helps reduce shocks.

The distance that a shipment of comb honey has to travel is no criterion as to the care it should receive in packing. For instance, a shipment from Stevens Point, Wisconsin, to Milwaukee, will be handled twenty-two times, whereas a shipment from Milwaukee to New York will be handled only ten times.

In order to ascertain if comb honey could be shipped with any reasonable degree of safety in single case lots, we made up a number of different kinds of crates and shipped comb honey in them to distant parts of the country, at the American Railway Express Company's expense, and had them report on the honey's condition at destination.

The following is the description of a crate and method of packing that carried comb honey safely to its destination. A general view of the

crate is shown in the accompanying illustration. This crate is for one single-tier case of comb honey and is 23 inches high, 18½ inches wide and 11½ inches deep, outside dimensions.

Note particularly that the case of honey is carried in the crate on end. The sections stand straight up, with each row one above the other. This is to reduce the effect of train vibration. In order that the employes of the express company will know that the crate is to always be carried on end, two cleats are nailed across the bottom ends of the crate as shown in the photo. These cleats should extend at least three inches beyond each side of the crate, to prevent it from tipping over. This method is similar to the one successfully used for shipping plate glass.

The bottom of the crate should be cushioned with four inches of straw, packed tightly, to reduce shocks and train vibration. The case is placed on the straw in the bottom of the crate so that straw can be packed tightly on all sides.

It is not necessary to put straw over the top of the case. However, it is important to plainly mark the top of the crate with the words, "Comb Honey—Handle with Care. Keep from Heat."

Two or more cases can be packed together in a larger crate in the same way. The larger crates should have handles on them to make it easy for the employes of the express company to handle the shipment.

Honey Publicity

By N. R. Sinclair.

Leslie Burr gave some excellent pointers about newspaper publicity for the beekeeper on page 115 of the March issue of the American Bee Journal. In submitting such publicity to local newspapers, beekeepers will gain friends if they do all they can to lessen the work of the people in the editorial office.

Some of the best suggestions about legitimate publicity were given in a Sunday School paper, the Organized Class Magazine, by Will B. Muse. Some extracts will be of value to beekeepers:

"Matter that is stale has no news value.

"Prepare your copy so that it may be easily read by the editor. Typewritten matter stands a much better chance than that which is written with pen or pencil. Be sure to write on one side of the sheet only, and double space the lines so that corrections or interlineations may be made, if necessary.

"Give the gist of the story in the first paragraph; in other words, write the first paragraph so that should the remainder of the article be omitted for any reason, the reader will still get a concise story.

"Leave ample space at the top of the first sheet for headlines. Under no circumstances should you furnish headlines for your newspaper stories.

"Make a study of the style of the newspaper to which the copy is to be submitted, and endeavor to conform to it as much as possible.

"If there are two or more newspapers in your town, send a copy of your news item to each of them. These items should be written a little differently, however. Never send carbon copies to two or more papers

"Be sure to give the initials of a man or woman when the name is mentioned, in the first part of the story. And they should be correct. There is nothing that riles some persons more than to have their names misspelled in print.

"One good turn deserves another. If the editor is kind enough to publish the matter which you submit to him, it is only right that you should 'tip him off' to anything of news value which comes under your observation."

These valuable sugestions are passed on to beekeepers not only because they might apply to getting into print anything timely about honey, but because they will be useful on many other occasions. They are likely to have a tendency to make editors welcome advance notices of beekeepers' meetings and accounts of what happened when the beekeepers did get together.

Helping the newspaper people by making re-writing unnecessary will go a long ways toward getting favorable publicity. But as Mr. Burr reminds us of the quality of the items:

"Good judgment, of course, is necessary."

What Is the Matter With the Rest of Us?

A letter from a beekeeper in Florida with 600 colonies, producing thirty-six tons of honey this year, says that the crop is sold at 10 cents in carlots, with no trouble at all.

The surprising thing about the price question and the lack of market is that when the holler is the loudest there are always producers of honey in quantity that write of how easily they sell their crop. How do they do it? I doubt if there is any secret about it. Just hustle and use the usual sales arguments. Maybe it's something else, but, as the Scotchman says, "I hae me doots."

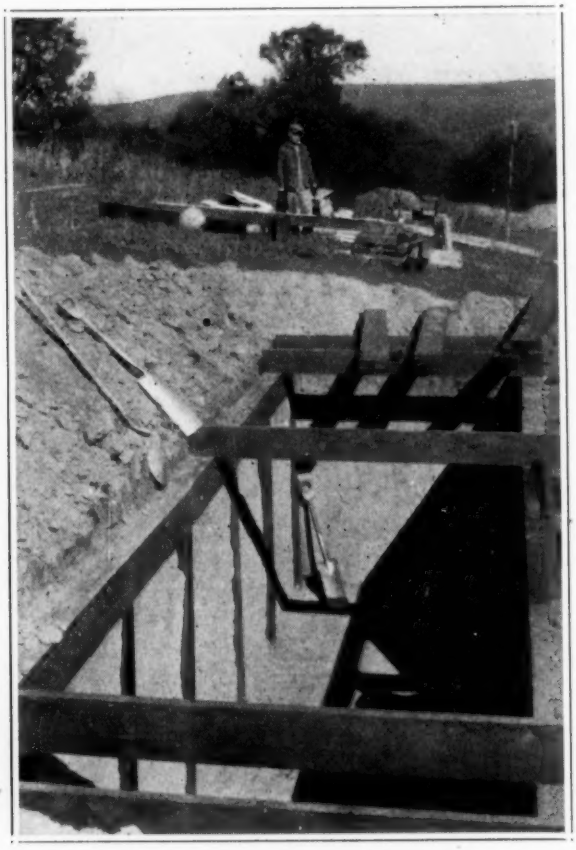
Doctor and Mrs. Phillips, visiting in southern France, at the home of Victor Dumas, who has written several articles published in the American Bee Journal. Most of the persons present are unknown to our readers. The first lady at the left is a cousin of Mr. Couterel, whom we visited in 1913 (see American Bee Journal, July, 1915, page 232). The next is the host's wife, Mrs. Dumas, and her daughter; the next Mrs. Phillips, the next Mrs. Couterel. Dr. Phillips is easily recognized near the center, with Baldensperger at his right. The second man from the right is Couterel, the third Dumas, the host. Three other photos were received, but they are not clear enough to make cuts.

Constructing a Bee Cellar

By C. S. Engle

MY first attempt at cellar-wintering bees was in northeast Nebraska in 1918. A cellar 12x24 was constructed and covered with poles, brush, straw and earth. No allowance was made for ventilation, for a friend, who had cellar-wintered his bees for many years, advised me to leave out ventilators. Nearly three hundred colonies were placed in this cellar, and during the winter they became uneasy and raised the temperature so high that a large ventilator was decided upon. The bees then quieted down, but it seemed that their vitality had been spent during the previous excitement. This was my worst attempt at cellar wintering. Most of the following spring and summer was spent in nursing the bees back into first-class colonies.

After my unsatisfactory experience in cellar wintering I visited several beekeepers who were successfully wintering their bees. It became evident that I had tried to winter too many bees in too small a cellar, and that cellars in that locality did need some form of ventilation. The next winter I wintered two hundred colonies in a cellar 8x7x32 feet, with two ventilators through the roof and an underground ventilator to carry fresh air inside. The bees did much better in this cellar, but the temperature rose too high during the January thaw. This was because two hundred colonies were too many for this size cellar when the outside temperature remained high for any length of time. This cellar has given excellent results when only 150 colonies or less were wintered in it.



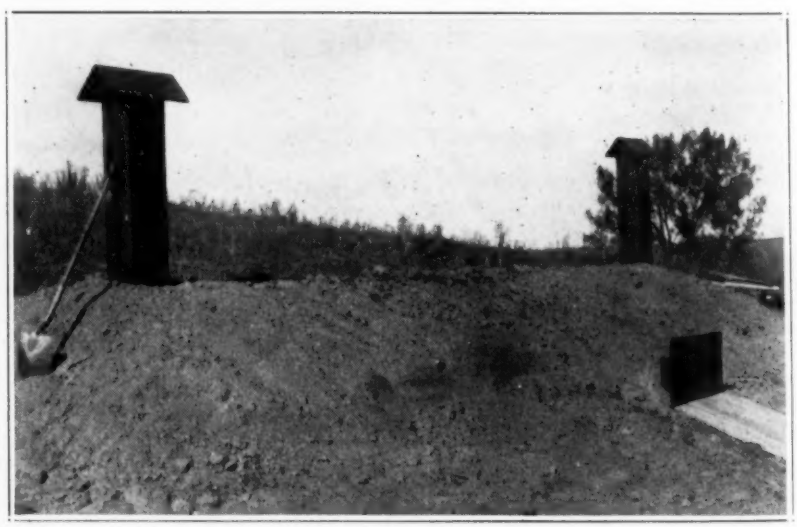
Cellar dug and timbers in place

Another cellar, 8x40 feet, was built to care for an apiary of two hundred colonies. This cellar gave good results, with the exception of warm spells of weather the first two winters that it was used; since then there has not been over 125 colonies in this cellar. A smaller cellar at the other end of the apiary takes care of the balance of the bees.

As more cellars were needed, I decided to put in two cellars at each apiary, as one or two other local beekeepers were doing. Each apiary was laid out systematically, so I put a cellar in back of each half of an apiary. These cellars are 6 feet wide, 7 feet deep and 24 feet long, and run parallel with the rows of hives, with the entrances in the middle. This seems to be the correct size for one hundred colonies.

I believe that bee cellars, in this locality, should be built so that all colonies are placed up against the earth. The earth holds a very even temperature, and such cellars have given me better satisfaction than those in which some of the colonies had to be placed in the middle, instead of against the walls.

The accompanying pictures show the construction of the last five cellars that I have put in. No. 1 shows



Cellar finished and ready for bees

the cellar from the end, with some of the timbers in place. Sheathing was nailed on top of the joists and the sheathing covered with felt building paper. A ventilator was placed in each end, just through the roof. No. 2 lets you see how the cellar appears after the earth has been properly placed around the sides and on top. An underground ventilator, of eight-inch tile, runs from about twenty-five feet in front of the outside door into the cellar. This ventilator and those through the roof are closed during the coldest weather, but all are left open in late winter and spring.

Beekeepers farther north do not seem to have as much trouble in keeping an even temperature in their cellars as in this vicinity and farther south. Iowa.

(My experience would indicate that the reason why there is less trouble in wintering in the far North is that they have less warm days in winter to raise the temperature above normal. We wintered for eighteen years in the cellar, and quit it finally because of the objections of mild winters. It might be possible to secure a more uniform temperature by making the cellar deeper and covering it with more earth. That remains to be tested. But there is no doubt that cellar wintering is a matter of locality. The farther north it is done, the better the result.—Editor.)

Value of Bottom Packing for Wintering Bees

By Raymond Newell

ONE of the subjects of vital interest to the majority of beekeepers, who winter bees on their summer stands, is the type of packing and quantity necessary for successful wintering of the bees. There are two things to consider when saying the bees have wintered well: the quantity of bees left in the spring and their vitality. It is well known that one may winter all his bees, yet along in May find that they are wearing out faster than young bees are raised to take their places.

It is not my intention to discuss the general packing of bees at this time; perhaps I may at a later date. I want to say a few words in favor of bottom packing.

I have packed bees with a foot and more of packing on all sides, top and bottom, and I have also eliminated bottom packing except from the protection afforded by the bottom board, and I find that those colonies having no protection from below do not winter as well as those protected here in New York, Vermont or New Hampshire. I cannot speak for other sections of the country, but assume that the advantages would be as great for other sections of the country having similar climates.

I remember reading articles by such authorities as Mr. Crane, of Vermont, and the department at Washington, advocating protection to the bottom, but the reasons they gave, though in favor, are not clearly given. Therefore, after several years of trial, I would like to give my results, though they may not be accurately figured out.

I find that the greatest disadvantage from not packing is that dampness from melting snows and condensation of moisture within the hive, caused by the warm heated air from the bee cluster when striking the outer margin of the combs and bottom board, condenses into moisture, which often causes molding of the combs and souring of unsealed honey, should there be any in that part of the hive. Another disadvantage to the bees is that the bottom board is cold and frosty and only a short walk on it is necessary to chill and prevent the bees from getting back to the cluster during cold weather. The chances from chilling a few bees are not worthy of as much consideration as that enough bees may reach the entrance to die and block the opening, causing death of the colony in that manner, if the beekeeper does not clear it out before activity begins in early spring. During very cold, windy weather, I often bank the entrances with light snow, which is an advantage; but a blocked entrance is far from advantageous when the bees are trying to void their feces after a long spell of confinement.

Aside from the above mentioned factors is the fact that the hive bottoms, if not cypress in construction, depreciate very rapidly if in contact with the ground. The hive is much colder where no bottom packing is given. Some have likened the lack of bottom packing to an open window or door in the house. Though perhaps this is over-emphasized, yet if we were to spend the night outside on a frosty night the preference with many of us would be a few layers of paper, some chaff, sawdust or other material between the frosty ground and our bodies.

There may be other advantages to bottom backing that I have not mentioned, but I have yet to find any disadvantages other than the labor and materials. If nothing better is at hand, a layer of leaves, to set the hive upon, is good, or some straw, but when winter cases are used I generally place a few layers of paper on the bottom and then from two to four inches of loose packing material.

New York.

Young Queens Are Needed

By L. H. Cobb

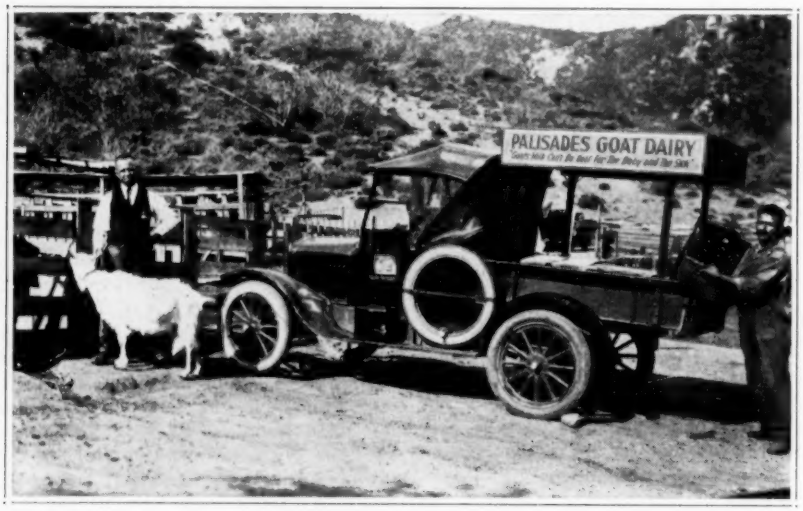
While it rests largely with each beekeeper as to whether it is advisable to rear young queens or buy them, one thing, I have become convinced, is essential for best results if we want to winter our colonies to advantage and get quick building up in the spring, and that is a young queen with the colony in the fall. The wintering and early spring building up depend so much on the force of bees we have in the fall, to go into winter quarters, that anything we can do to make these younger and stronger is profitable, and it is conceded that a young queen will stick to her job better in the fall than an old queen. I have always given special attention to keeping the colonies rearing brood right up until frost. I feed lightly each night if the fall flow checks up. This with a young queen will give a hive full of young bees that will live long enough in the spring to start things with a rush. Then the young queen has no special inclination to swarm. Given plenty of room, she is hardly more likely to swarm than would a queen introduced in the spring, and she is on the job right from the start. I believe this is accepted doctrine with most beekeepers, and the many new beginners will find they gain by watching these little points. I have seen brood in a hive with a young queen when colonies in the same location with old queens had none, and often I have found it difficult to start old queens laying by slow feeding, while the young queens seem anxious to keep brood coming, if there is any flow at all, and they respond at once to feeding.

While I often had my colonies rear queens after the main honeyflow, it is a question if better queens from a queen breeder would not be a cheaper proposition in the long run. It is considered not advisable to rear queens when little nectar is coming in, and to remove the queen after the flow is over, prolonged as it often is with our better supply of honey plants, may cost us enough honey to buy a couple of queens.

A Mountain Desert Apiary that Pays

By F. L. Clark

THE desert mountains yield much bee food besides the sage flower, Sidney Herndon, beekeeper in the Pacific Palisades north of Los Angeles, California, said recently in talking of his success with bees in the foothills where "the mountains come down to the sea." In March, he says, there is the wild alfalfa, hoarhound and wild blackberry. From the middle of April to June, the sage is in blossom. After the main sage flow is over, in the later summer, come the sumac and wild buckwheat.



Goat dairy of F. S. Kocotis and P. J. Kiriakos, in Santa Monica Mountains, next door to Herndon apiary

Mr. Herndon has found, in his experience in mountain beekeeping, that one can make good money with bees three years out of five on an average. The other two years out of five drouth cuts down returns, and the bees just about take care of themselves, with a little surplus. His best year, Mr. Herndon made $1,000 off of the sage honeyflow from 150 stands.

A little new development that helps mountain desert beekeeping to be profitable, Mr. Herndon says, is the open markets by the roadside, which are becoming so common in southern California on touring routes. These open markets are featuring "sage honey" as well as "orange flower honey." The novelty of the two attracts tourists, who are always on the lookout for something different. California souvenir packages of sage honey and orange flower honey are being sent home or carried back by the eastern and midwestern tourists as treats for the friends who have stayed at home.

A visit to the Herndon apiary in the foothills is truly a visit to the land of milk and honey, for right alongside of the beeyard is the goat yard of F. S. Kocotis and P. J. Kiriakos, who sell goat's milk in Los Angeles. Beekeepers and goat dairymen are great friends and cooperate in business to handle their mutual problems of doing business off the beaten track in semi-mountain isolation. The dairy truck helps out part of the time in delivering honey and transporting bee supplies. The goats and bees are not rivals for the wild alfalfa and other mountain pastures. The goats are fed in pens, so the bees are monarchs of all the pastures they survey on the mountain sides.

Sidney Herndon and his mountain apiary near Los Angeles

Tannic Acid In Honey

By W. A. Goodacre

Senior Apiary Instructor

Paper read at the conference of the New South Wales Apiarists' Association held at Cootamundra, April, 1926.

The question of improvement in the quality of honey produced has of late been given much prominence, and rightly so. The Department of Agriculture, cooperative societies, and the Apiarists' Association have all been active in this direction, and good results have been obtained.

Our investigation in regard to tannic acid in honey is for the purpose of further improvement of our product. While very little has been said about tannic acid, and it is rarely mentioned in literature, most bee farmers have had trouble with it in the course of their experience. It is produced by the chemical action of honey in contact with iron, and is in reality plain ink.

Practically all honey-house appliances and containers are likely producers of tannic acid, and in our investigations we find the more intense formation where free action of the air is available; for instance, honey leaking from the cap of a container very soon causes chemical action, and the infusion of ink is observed. Even about the caps of the honey containers we find, in the ordinary course of things, some tannic acid formation, the air having in these cases more chance of assisting production. In filling and handling the containers, especially those with the screw caps, it is best to prevent the honey from coming in contact with

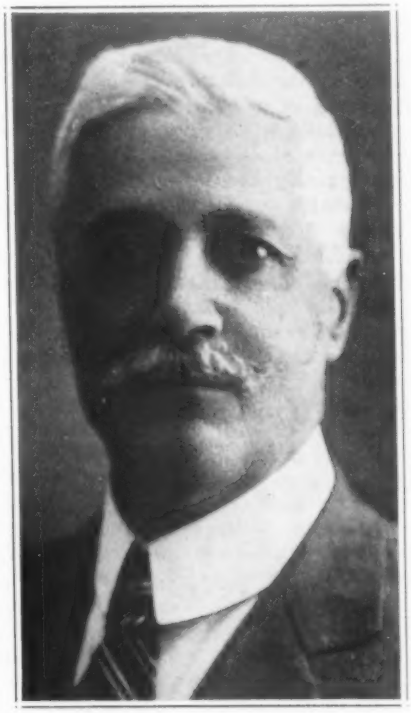
the cap. The fact of soldering and screwing on the caps does something toward removing some of the tinning, and thus allowing action to commence.

The honey extractor is another likely source of the production of tannic acid, especially those with the old style baskets. Samples taken from the extractor showing dark streaks or dark stain are often referred to the Department for some advice regarding the cause. The old style baskets have folded tin supporting the wirework, and the honey works its way into the folds and provides there quite a factory for the production of tannic acid, which is extracted along with the honey. Even boiling the baskets previous to each extraction does not entirely eliminate the trouble.

The new style baskets are improved in construction and easier to clean, it being possible to remove the screen supports separately. I would advise apiarists having trouble with their extractors in tannic acid production to obtain the new baskets. Many apiarists leave a small quantity of honey in the extractor over winter, and on being drained out this honey is found to be well charged with the acid. A dark (even a black) stain may be seen on the bottom of the machine, showing where the action has interfered with the tinning, giving a chance for further intense production during the extraction season. The question is, would it be best to thoroughly wash out and dry the extractor at the close of the season? I believe so. In any case the extractor should be well drained. In the case of honey tanks, they should be washed out and dried thoroughly at the close of the season, or well drained and well covered. Where honey tanks or extractors show the stain due to tannic acid action, prevent further action by painting the inside of the vessel with hot paraffin wax. Second-hand honey containers cannot be recommended. I have known it to take five washings with hot water before all discoloration was removed, and the tins had only been used once.

Here is an instance which may show how serious the question of tannic acid in honey may prove: A picnic party, in selecting a tin to take water with them, washed out thoroughly, as they considered it, a tin which had had honey stored in it. At the picnic the water was to all appearances quite clear for drinking purposes, but the tea made from it was almost pink in color, showing the presence of tannic acid. How about honey in such containers when it has to be warmed for liquefying purposes?

A good deal of the discoloration noticed in honey after being warmed up comes from tannic acid, in many cases faulty tinning in containers permitting the chemical action. See, therefore, that all containers are perfectly bright inside; those with rust spots, even though they are small, or discolored patches should be discarded. It behooves all to work against tannic acid production, for not one of us would care to have ink in our honey.



This good-looking beekeeper is Signor G. Montagano, of Rome, author of several works on bees and translator into the Italian language of Perret-Maisonneuve's recent book on queen-rearing.

Spraying During Full Bloom Detrimental to Honeybees

Ever since fruit trees have been sprayed with arsenicals, beekeepers have been much interested in the effects of the practice on the mortality of honeybees. They have long felt that many bees were poisoned as a result of spraying, but until recently few systematic investigations have been conducted to determine whether or not honeybees are actually injured by these chemicals.

In the hope of finding definite answers to some of the questions, so long debated, the entomologists of the United States Department of Agriculture planned and conducted a series of experiments, the results of which are discussed in Department Bulletin No. 1364-D, just issued. The investigations, extending over a period of three years, were made along three lines: (1) The effect on honeybees of spraying fruit trees in full bloom; (2) the effect on honeybees of spraying the trees at the customary time, after most of the petals have fallen; and (3) a determination of the minimum amount of arsenic required to kill the bees in confinement.

After one season's work in two states, it was ascertained that spraying during full bloom was detrimental to bees. After three seasons' work on the problem, in four states and five localities, it was determined that spraying at the customary time under nearly ideal conditions was not injurious to the bees; but nearly ideal conditions seldom occur.

The minimum fatal dosage of arsenic per bee, according to laboratory determination, is between 0.0004 and 0.0005 milligrams.

The subject of poisoning bees is very large and of vital interest, not only to beekeepers, but to everyone who is interested directly or indirectly in the growing of crops, including particularly fruit growers, entomologists, and plant pathologists, says the department. Of course, the beekeeper does not want his bees poisoned, but the loss of honey is only secondary in comparison with the loss from lack of cross-pollination of flowers. In this respect, the beekeeper, the fruit grower, and in fact everyone is benefited by bees.

It is now generally admitted that in using arsenicals as a control for the codling moth the best results are in nearly all cases obtained by applying the first spray after the most of the petals have fallen, although in commercial orchards where hundreds of acres of trees must be sprayed within a limited time, it is necessary to begin spraying early in order to finish the work before the calyx cups close.

Because the codling moth can be as well controlled by spraying when 90 per cent of the petals have fallen, entomologists recommend spraying at that time rather than during full bloom, especially since it has been definitely proved that spraying when trees are in full bloom is injurious to insect pollinators.

A copy of the Bulletin may be secured, as long as the supply lasts, by writing to the United States Department of Agriculture, Washington, D. C.

Hints on Selling Honey

By O. B. Griffin

FIRST to review a bit the experiences of the past. For twenty years I have had from several hundred pounds to three tons of honey to dispose of each year, practically all comb. When I began the production of honey in a small way, more than a quarter of a century ago, the traders used to offer me 13 cents a pound for No. 1 comb honey in standard sections, if I would take it in trade. Not being able to see a very brilliant future in the production of comb honey at this price, I went to Boston, where I spent a few months trying to build up a trade, direct, for our potatoes and honey. So far as the honey was concerned, I was fairly successful and had a good demand for my limited crop for a number of years. The price secured was 16 and 18 cents per section for No. 1 comb honey. The last named price was obtained for small lots, the other for that sold to the trade that took one hundred pounds or more.

At first I did not use cases at all, but packed in any neat wooden boxes available, sometimes in boxes which would hold as much as two hundred sections or more. These were packed between doors in cars of potatoes, by special arrangement, and were removed by party to whom they were consigned, on arrival of car. Later this method had to be given up and we began shipping by express, but the loss from breakage was so unsatisfactory that we gave up the distant shipments, to our regret, as we had several customers who appreciated our honey.

We then hunted up markets nearer home, selling about one-half of the crop to wholesale trade and the balance to the retail trade and direct to consumers. During these years we have never had much difficulty in disposing of our honey crop before the new crop came on. The past three years have been the most difficult ones in which to move the crop, requiring more effort and getting the least returns for amount of advertising done.

In talking with other beekeepers in other parts of the state, they tell me the demand for honey has fallen off with them also.

No one can tell why. My guess has been that during the war period the price of honey reached a place that many of us never expected to see it reach. This was made necessary by the greater cost of production and handling. Since then, sugar has become more plentiful and the price has gone down to around 7 to 10 cents a pound. Other things which come into competition with honey, fruits, etc., are much cheaper, but honey has held up pretty well toward war prices. Those who consume sweets can satisfy their craving with sugar products for less than honey can be purchased. During the war, substitutes for sugar were used by the candy makers, and candy was not as satisfactory or cheap in price as at present. Today candy is plentiful and of good quality. While the price cannot be said to be cheap, good candy can be bought at fairly reasonable prices in most cities and towns.

Those who bought honey are now buying candy instead. Conditions may not be the same everywhere, but this seems to me to be the case here in the Northeast. This section has had a short honey crop for the past three years, the last two particularly short. Had there been a normal crop, I think beekeepers would have had considerable difficulty in marketing the crop at paying prices. With a return to better producing seasons and larger crops, what are we to do in order to move it satisfactorily?

If I knew just what would do it, I should feel that you were asking me to give away valuable trade secrets, but as I can only say what I think will do it, or what I shall try, it may not be worth much to others.

First, the consuming public must be made to understand the real food value of honey in comparison with sugar and other foods, and the beneficial effects of making it a part of the daily fare. This means advertising the fact in some way. I don't think that the small producer can afford to use the daily press or popular magazines; they are too expensive for results obtained. Exhibitions made, where they will reach the class desired, are profitable.

If honey could be served in attractive small samples it would help much, but beekeepers should unite in this, as all would be helped by this distribution.

Little, neat booklets, setting forth facts about honey, its food value, with recipes for candies, cakes, etc., in which honey may be used with agreeable effects, should be placed in the hands of those who would read them, not given out promiscuously.

If situated where I could get in direct touch with factory or mill workers, I would make an effort to serve them direct. I should not try to sell them large quantities at a time, but small lots, and supply them oftener. Keep them a bit hungry for it. Get them to form the habit of buying regularly, and they will look for you; and once the habit is formed of eating honey regularly it is not easily broken.

Dealers are apt to buy their supply of honey of the first man who comes along, if they think the price is right. The man on the ground has a big advantage over the man who has to solicit by mail. Roadside markets offer a splendid opportunity, but I would not ask the prices charged by retail city stores. One don't have to. The overhead is much less. Make it an inducement for folks to come to you. They are not going to, unless it is to their advantage in some way. Sell this class of trade all they will buy and explain to them carefully how to care for it.

To attract this trade, have a few hives where they can easily be seen, and a roadside sign, or, better still, a banner stretched across the road, or one that appears directly ahead, or nearly so, to the approaching autoist. These should be so written or worded "that they who run may read."

Impress upon the busy housekeeper the fact that honey is all ready to serve at all times, needs no preparation, and is a very pleasant dessert if served with a little sweet cream, or even without.

Short stories about the bees and honey, written for the local papers, will keep you before the public, and the papers are usually glad to use something of this sort, if written right.

I think these are all the suggestions you will care to use this time. I trust they may be of assistance to some one.

Maine.

Hiving a Swarm

Recently, in hiving a swarm, the bees soon quit entering the hive, though they stayed just outside and continued their "home-found" buzz.

Noticing that the rear end of the hive was five or six inches lower than the front, and recalling that the bees have an "upright" reputation, the hive was leveled. Presto, the march was resumed and the bees all inside very quickly.

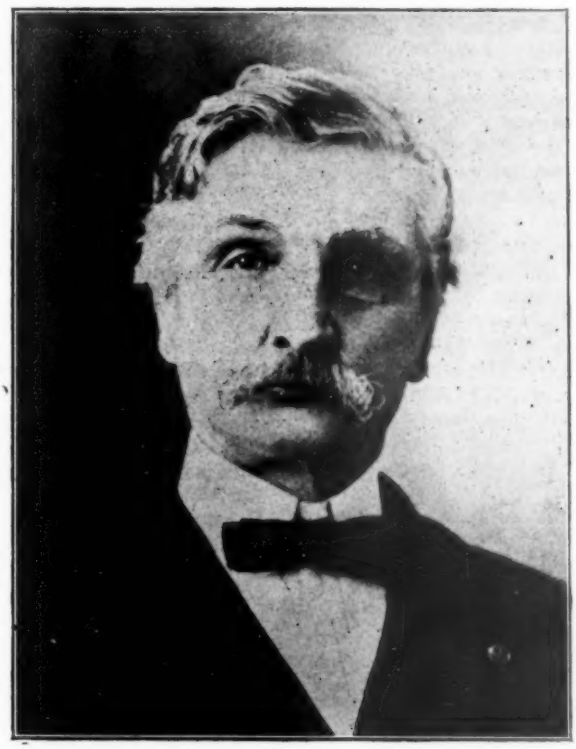
Guess it pays to be "on the level."

M. R. Blood.

Colonel William Camm

THE Journal of the Illinois Historical Society, volume 18, number 4, January 1926, gives a diary of Colonel William Camm, between the years 1861 and 1865, the years of the Civil War. As Colonel Camm was a very active beekeeper and a very notable man, I believe that the beekeepers of Illinois will be interested in this, even though he was born in 1837 and died in 1906.

I was well acquainted with him; we had his visit several times between 1885 and 1888, while we were revising the Langstroth book, in which he took a great deal of interest.



Colonel William Camm
(Photo courtesy of Illinois State Historical Society)

Colonel Camm joined the Fourteenth Illinois Volunteers in 1861, when he was 24 years old, and was made captain of Company K. He was a wonderfully brave soldier, with good judgment, and to this was due the fact that he was made a lieutenant-colonel before he was 25 years old. As this was "five years under the age prescribed for a field officer," he hesitated in accepting the promotion, but he was certainly worthy of it. He served from May 25, 1861, to September 14, 1862, in Missouri, Kentucky, Tennessee and northern Mississippi, when he was overcome by "camp diarrhea" and was given an order to go north and return in twenty days. Got home September 19, and his sweetheart, "Kittie" (Miss Maria Mason) suggested that they be married at once, so she could take care of him. So they were married on September 23. He soon recovered fully and returned to his regiment, which he met at Jackson, Tennessee. He served through the war without having apparently been wounded seriously, although he was in the midst of several battles and skirmishes.

His wife died after childbirth, January 24, 1864. The child died also. He married again, in October, 1865, Miss Nancy New, of Winchester, Illinois. They had five children.

The war diary of Colonel Camm is interesting reading. He served gallantly at Shiloh and at Corinth. But we cannot follow him all through the war, for we must say something of his record as a beekeeper.

Colonel Camm wrote for the American Bee Journal, dozens of times, from 1879 to 1892. In May, 1888, he wrote quite a lengthy article concerning the rental that a man might expect from a beekeeper who kept bees on or adjoining his land. He was of the same opinion as we are today, that bees are intended in nature to fertilize the flowers and that the honey a man secures from them is simply a wage for his care of them, so that a beekeeper ought not to be required to pay anything to the land owners for what the bees harvest on their land.

He wrote in the "Beekeepers' Guide," which I believe was published in Kendallville, Indiana, about how fond bees were of salt water and that he was in the habit of supplying them with it.

He was made secretary of the Central Illinois Beekeepers' Association in 1884, an account of whose meeting was published in the July 23 number, page 471, of the American Bee Journal. The meetings of this association were usually held in Jacksonville.

Colonel Camm was quite a student of political economy. He was a believer in the Henry George "single tax" scheme, and wrote: "Agricultural labor is more poorly paid than any other, and upon it all the mistakes or burdens of other classes are ultimately, yet inevitably, thrown, hence so many are driven into town or city." (American Bee Journal, July 21, 1886.)

Colonel Camm lived most of his life at Winchester and Murrayville, in Scott county, but died at Danville, in 1906.

Bees Help in the Pear Crop

In the Antelope Valley, California, a great many Bartlett pears are raised, and the bees help in their cultivation in a systematic manner, since practically all of them are leased to pear growers for purposes of pollination. The growers pay a certain amount for each hive, and the proportion is about one hive to two acres of pear trees. The Winter Nelis, which is the pear most used as a polinator in this valley, comes into bloom a few days ahead of the Bartlett, and the bees then do their stuff, helping the cause along. The growers state that the increased yield more than pays for the expense of renting the bees. The bees, too, earn a little extra in this way for their owners.—Delphia Phillips, in American Fruit Grower Magazine.

Uintah Basin in Good Shape

Dan H. Hillman, State Inspector of Apiaries, has just returned to this city from inspecting the Uintah Basin district. He reports that prospects are bright there for a good honey-flow. Beekeepers have made good progress in cleaning up the foulbrood among their colonies and have now gotten the upper hand of the disease. Comparatively little foulbrood was found, and this was promptly cleaned up.

Salt Lake City, Utah.

(Continuous attention is necessary in order to make sure that the disease does not reappear.—Editor.)

Personal Recollections of the Editor

National Beekeepers' Association—No. 3

AT the convention of Los Angeles, 1903, N. E. France, general manager, gave a list of locations of the cases handled by the association during that year, as follows:

Lynden, Ontario; Little Britain, Ontario; Central Lake, Michigan; Sparta, Michigan; Woodstown, N. J.; Aurora, Illinois; Kankakee, Illinois; Kendaia, N. Y.; Riverside, Iowa; Bishop, California; Proctor Knott, Minnesota; Soldiers' Grove, Wisconsin; Denver, Colorado, two; Lake View, Calif.; San Antonio, Texas; Riverside, California, two; Mesa, Arizona; Lansing, Iowa, two; New Mexico, change in law; Chicago, Illinois; Truxton, N. Y., two; Vernal, Utah; Baraboo, Wis.; Schertz, Texas; Augusta, Wisconsin; Sioux City Daily, misstatement; Mitchell, South Dakota; Minneapolis Journal, misstatement; Brookdale, New Jersey.

The report of this meeting contains a number of interesting statements, also lists of bee supply dealers, of queen breeders, of foundation manufacturers, of honey dealers, of beekeepers' associations and secretaries, of bee magazines and of the U. S. census of bees.

The President-elect was James U. Harris; Vice-President, C. P. Dadant; Secretary, George W. Brodbeck; Directors, C. C. Miller, W. Z. Hutchinson, Udo Toepperwein, W. A. Selser, E. Whitcomb, R. C. Aikin, P. H. Elwood, E. R. Root, C. A. Hatch, J. M. Hambaugh, G. M. Doolittle and W. F. Marks; Manager, N. E. France.

Each year thereafter, until and including 1911, a voluminous report was printed and published. The report for 1904 contained 172 pages, besides a few pages of advertising. This meeting was held at St. Louis, September 27-30, 1904. The report of the Manager for that year shows a balance in the treasury of $1,136.89 and a membership of 2140.

For 1905 the meeting was at Chicago, December 19-21. During that season the minds of the beekeepers were turned towards advertising honey, preventing adulteration, and doing away with the silly stories of manufactured comb honey. Honey was becoming more plentiful on the markets. A "Honey Producers' League" was formed. As some fastidious beekeepers objected to dealers, queen-breeders, manufacturers, honey dealers and publishers being members of the National, under the plea that they influenced the action of the association, this league was formed especially to include them within its ranks and to require of them a greater membership fee than from the average beekeeper. It will be sufficient to quote two sections of article three of its constitution:

"Section 1. Any beekeeper may become a member by paying to the Manager an annual fee of $1.00 for each twenty, or fraction of twenty, colonies of bees he owns or operates.

"Section 2. Any honey dealer, bee supply dealer or manufacturer, bee paper publisher, or any other firm or individual, may become a member on the annual payment of a fee of $10, increased by one-fifth of one per cent of his or its capital used in the allied interests of beekeeping."

The officers of the National for that year and for 1906 were: President, C. P. Dadant; Vice-President, George E. Hilton; Secretary, W. Z. Hutchinson. France was continued as manager. His report showed $784.69 in the treasury, with a "League" fund of $1,408.27, to be used for advertising honey. Membership about 2100.

The 1906 convention was held in San Antonio, Texas. Two members present at that meeting had attended the Indianapolis meeting in 1871, thirty-five years previously. These were Dr. G. Bohrer, of Kansas, and P. D. Jones, of New York.

A guarantee label, bearing the seal of the association, for beekeeper members of the National to use upon their honey, was presented at this meeting by Manager France.

A proposition was presented to amend the constitution so as to prevent manufacturers, dealers, patentees of apiarian implements, queen breeders, importers of bees, bee editors, authors or publishers of works on bees, from being eligible to any office in the National Association. The proposition was from a disgruntled eastern beekeeper.

Dr. Bohrer proposed to include in that resolution anyone who sold bees or honey and then vote the whole thing down. It was voted down.

Immediately after this National meeting, a meeting of bee inspectors from the different states was held in the hall, under the direction of Dr. E. F. Phillips, of the Bureau of Entomology of Washington. It was at this meeting that Dr. G. F. White, of Washington, first described the real cause of American foulbrood, Bacillus larvæ.

In 1906, June 30, the Federal Pure Food and Drug Act was passed by the Congress of the United States, after twenty-seven years of petitions and resolutions passed almost year after year by beekeepers and others, the first one being the one fostered by Charles Dadant in 1878. Dr. H. W. Wiley, then U. S. chemist, may be given the credit of getting the Government to pass this bill. In this way he made up to a certain extent for the "scientific pleasantry" of which he had been guilty, in June, 1881, when he stated in the "Popular Science Monthly" that comb was "manufactured of paraffine, filled with glucose, and sealed over by appropriate machinery." This hoax is still believed in many places and has done a great deal of harm to the sale of the nicest comb honey by placing it under suspicion. The pure food law is a great help to honey producers.

The 1907 convention was held at Harrisburg, Pennsylvania, October 30-31. The officers at that time were: President, L. A. Aspinwall; Vice-President, George E. Hilton; Secretary, J. A. Green; General Manager, N. E. France; Directors, W. McEvoy, R. C. Aikin, P. H. Elwood, E. Whitcomb, R. L. Taylor, Udo Toepperwein, C. A. Hatch, F. Wilcox, M. H. Mendleson, G. M. Doolittle, James A. Stone and R. A. Holekamp.

The 1908 meeting was held at Detroit, Michigan, October 13-15, with 237 beekeepers in attendance, George Hilton, then President, in the chair. The list of members now amounted to nearly 3,000.

The 1909 meeting was held at Sioux City, Iowa, September 22-23, presided by George E. Hilton. The officers elected were: President, George W. York; Vice-President, W. D. Wright; Secretary, Louis Scholl; Manager, N. E. France; Directors, J. E. Crane, E. F. Atwater, R. A. Morgan, G. M. Doolittle, James A. Stone, R. A. Holekamp, W. McEvoy, W. D. Wright, R. C. Aikin, R. L. Taylor, E. D. Townsend, Udo Toepperwein.

I have not yet stated that three new directors were elected each year, in turns, so that each director held his position four years.

At each meeting a statement was made by the general manager. We do not give them, because the history would stretch to too great lengths. At each meeting, also, discussions of the interests of beekeepers would take place, just as in the old days, forty years previously. Let me give a list of the subjects treated at the 1910 meeting, at Albany, N. Y.:

What a Woman Can Do with Bees;

Extracted Honey; From Nectar to Market; Bulk Comb Honey and Its Future; Honeydew for Winter Stores; Foundation in Sections; Black Bees Versus Italians on Buckwheat; Alexander Method of Swarming; Comb Honey; Prevention of Robbing; President's Address; Changes in the Constitution; Selection in Breeding; Dark Honey for Winter Stores; Advertising to Create a Larger Demand for Honey; Glassed Comb Honey and Prices; Is Co-operation Needed Among Beekeepers?; Best Hive Stand; Foulbrood Treatment; Salary of General Manager; When and How to Requeen; Methods of Retailing Honey; Southern Honey Production; Feeding Between Fruit Blossom and Clover; Profitable Management Without Swarming; and a lot of small items and discussions.

The salary of the general manager had been from 15 to 20 per cent of the money collected, altogether too small a remuneration for the labor involved. It took devotion to the cause; but nothing has ever succeeded without devoted men.

At this 1910 meeting, realizing that many beekeepers allowed their membership to lapse for want of remitting the small fee, an attempt was made to create a new constitution. A committee was appointed to frame it and report at the 1911 meeting.

This practically ends the second period in the National Association. The first was for mutual information concerning beekeeping. The second was for mutual protection as well as for information. The third was now to begin.

Several pamphlets were published by the general managers. The first, entitled "Beekeeping Not a Nuisance," was by Thomas G. Newman, giving an account of the trial and decision by the Supreme Court of Arkansas, on the Arkadelphia lawsuit. The others, entitled: "What the Courts Say in Relation to Property in Bees," and two different pamphlets on "Beekeepers' Legal Right," dated 1904 and 1910, were by N. E. France. The aims achieved were: Evidences that bees are not injurious to blossoms or sound fruit; protection against injudicious spraying of blossoms that kills bees; prosecution of adulterators of honey; securing a national pure food law; evidences that bees do not cause pear blight; a number of laws for the prevention of the spread of foulbrood; property in bees, runaway swarms, etc.; the rights of keeping bees within the limits of incorporated cities, whenever they are proved not to interfere with the rights of other people; and, lastly, an effort towards co-operation among beekeepers. The effort was now to be made to organize beekeepers into one body throughout the country.

The next number will show how little was done and how much still remains to be done. More was achieved during the less than ten years of N. E. France's management than either before or since.

A Little More Publicity

"Commerce Monthly," a journal of commerce and finance, published by the National Bank of Commerce of New York, has a two-and-a-half-page article in the July number on "The Production of Honey."

It gives a bit of the history of honey production, the growth of commercial honey marketing, and a nice summary of the marketing condition of the present. We quote from it as follows:

"The sharp break in honey prices in 1920, with practically no upward reaction since, has naturally brought much complaint from beekeepers, and profit margins are apparently rather small in comparison with those which ruled before the boom took place. The prevailing low prices for sugar react unfavorably on honey quotations, and, although some improvement in this regard may occur, the industry has apparently reached a stage where it will be absolutely necessary to better the market by making the merits of the product more widely known. A great deal has already been accomplished; sales to candy makers and chain stores have been expanded and there are single factors who now pack over fifty carloads of honey a year."

Utah Law Forbids Spraying of Trees in Bloom

Utah knows a bee when she sees it. At least according to her laws it is forbidden to spray fruit trees while in bloom. This is not a new law, but orchard inspectors make it a point to see that it is obeyed. Both fruit men and beekeepers will benefit.

I am enclosing a photograph of one of the floats used during a recent carnival at New Iberia, La. In the opening parade each school was to represent some phase of agriculture showing the most prominence in the district. Honey was selected by one of them and carried out as you see it in the accompanying picture.

It is difficult for you to see how beautiful it was, as the moss-covered trees in the background blend so closely with the festooning on the float. The front of the float had a sign reading, "Have you a little honey in your home?" Then a mass of grey Spanish moss and rose vines with pink roses. Standing upright was a trellis, painted white, covered with moss and roses. Then came the large beehive, with the little girls, about six years of age, dressed in golden brown bloomers, with the panel in back banded with gold and black, representing live bees. **And they were real queens.**

The floats were judged by a committee as they passed in review, and the honey float received first prize, a beautiful silver urn.

This is a good start at advertising honey. Don't you think so?

E. C. Davis,
Specialist in Bee Culture.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

TO CONTROL INCREASE

I have two colonies of Italian bees in 10-frame hives; owing to lack of room I would like to keep only two hives. Some time ago I was told by an old beekeeper, when they swarmed to place the new swarm over the old one with a queen excluder between, and after a while to go through the old hive and remove all the queen cells, then remove the queen from above, placing her below the excluder, and probably they wouldn't swarm again, if given plenty of room. I am anxious to know when to go through and cut out queen cells, after they have swarmed. Weather exceptionally cold here, yet my bees are bringing in loads of pollen; can't see where they get it from, as the maples haven't shown red much yet.

MASSACHUSETTS.

Answer.—The method you propose is fairly good. But you must not only give plenty of room, but plenty of ventilation and plenty of shade. In a word, you must make them feel as comfortable as possible. You cannot expect the bees to remain satisfied, if the hive is so crowded that they have to cluster on the outside. As to cutting out the queen cells, it should be done not later than 5 or 6 days after the swarm has issued. It is really better to examine the hive twice, once within 2 or 3 days and again in 6 days, in case some queen cell may have been overlooked, which is very easy when the hive is so crowded with bees. After 10 days from the removal of the queen there is no longer any chance for queen cells.

If you want to prevent swarming as much as possible, have very few drones, young queens, plenty of room for breeding and for storing honey, large openings for ventilation by raising the hive from its bottom in front, and plenty of shade, artificial or natural. This will reduce the probability of swarming to the minimum.

HONEY IN RADIATOR

I wish to have you answer questions relating to the use of honey as a non-freezing solution to put in automobile radiators. In this country we have nine months winter; therefore there is a big demand for an efficient solution for this purpose. I can buy buckwheat honey at about five cents per pound, and it would appear to be a very cheap solution, provided it did not take too much honey to make it frost proof.

1. What proportions of honey and water are required to make a solution that will not freeze at zero?
2. What are the chemical properties of buckwheat or dark honey?
3. Will a solution of this kind damage the rubber hose connections on an automobile radiator? Most, if not all anti-freeze solutions cause radiator hose to leak in a very short time.
4. Will a honey solution flow freely at zero temperatures?
5. Will it clog up the pipes in a radiator?

CANADA.

Answers.—1. Half and half of honey and water makes a solution that does not freeze at a point considerably below zero. It gets thick and jelly-like at very low temperatures, but will not cause radiators to burst.

2. Buckwheat honey contains more foreign matter than the white honey, but this foreign matter may be skimmed off, if we follow the advice of Professor Kelty, of the Michigan Agricultural College, as mentioned on page 421 of the September, 1924, number of the American Bee Journal. He mixes and heats a three to two solution of honey and water, and when it boils he adds one quart of wood alcohol for every three gallons of the mixture. This he boils three minutes longer and then skims the skum which forms at the top. This is probably the best mixture.

3. The solution does not damage the rubber hose, but leakes very readily if the connections are not very carefully made.

4. Honey solution does not flow freely at any time, in very cold weather.

5. It will not clog up the pipes if mixed as recommended above. Some people are very much pleased with it; others do not like it. It probably depends upon the care taken. The great advantage of this mixturr is that it will evaporate very little.

SELLING GRANULATED HONEY

If a man has some honey to sell to some of the larger honey dealers, if the honey is in 60-pound cans and is granulated, does the producer have to heat the honey to bring it back to its liquid form, or does the large honey dealer heat it?

IOWA.

Answer.—Usually the large dealer in honey is better prepared than the producer to heat honey and liquefy it. So he does not care whether the honey is granulated, especially as it can be liquefied without taking out of the cans.

However, some dealers might demand that the honey be furnished liquid, in which case it would not be difficult to reduce it, by putting each can in a large boiler, after unscrewing the cap, so it will not burst the can, and heat it slowly to 145 degrees, with water around and under the can. The job is done better and more quickly by the dealer, in most cases.

FEEDING SOUR HONEY

I have about 150 pounds of honey which is beginning to sour. Could I feed it back to my bees to winter on?

Our winters are open and it is seldom the bees are confined over four or five days at a time.

OKLAHOMA.

Answer.—Under the circumstances that you mention, there will not be any trouble about feeding this honey, for bees that are not confined do not suffer from the use of soured honey. However, I believe it would be a good plan to heat the honey enough to evaporate the ferment that it contains.

WHAT IS A "GROS"?

1. Please tell me what unit of weight is indicated by the word "gros," page 117 of your translation of Huber's "New Observations." I am not aware that grams are so abbreviated, and if grams were meant it would show a consumption of about 21 pounds of brown sugar to the pound of wax.
2. Contrary to his statement, I find white sugar syrup to produce very white wax, while some dark honeys, as dandelion, produce yellow wax scales.

I am enjoying Huber's book exceedingly. Mr. Dadant has performed a very great service for the beekeeping fraternity by giving us the translation.

MONTANA.

Answer. 1. The "gros" was a measure of weight in Huber's time and, according to the dictionaries, is equal to about one-eighth of an ounce of the French pound, which differed a little from the English pound, being slightly heavier than the English pound. The weights and measures of the old days were very irregular, with changes from one country to another. As we still have most of the old-time weights and measures here, we have the mixup of those days. For instance, the Canadian gallon is larger than our own, and a gallon of honey in Canada weighs fourteen pounds, instead of twelve here. It is to be hoped that we will sooner or later adopt the metric system, which is used by all countries except the English-speaking ones. Our American forefathers were wise enough to make a monetary system based upon the decimal, same as the metric system, otherwise we would be figuring in pounds, shillings and pennies, with three operations instead of one in all our money figures. The "gram" which you mention belongs to the metric system and did not exist at the time when Huber wrote what he did.

2. The color of beeswax when first produced does not depend upon the material from which it is produced. It is of a milky whiteness and is colored by external circumstances, mainly the pollen. Huber did not know this.

Its or It's

Did you ever notice how readily many people misspell their native tongue? One of the most notorious stumbling-blocks is the word "its" as compared with "it's." The first is a possessive adjective of the neuter gender; the other is a shortening of "it is" with an apostrophe, in place of the second "i." This little lesson in spelling is called by the frequent repetition of an error, the last of which was made conspicuously at our expense, by an obliging type-setter. See page 329 of our July number. Twice in that page the type-setter saw fit to correct the print at the last moment, evidently to get it right.

Similarly on page 335, the "avocado," a southern fruit, not much known in the North, was first misspelt "avocada"; correction being made, it turned to "avacado," with just a shifting of the "a" and "o." If you never were an editor, you cannot appreciate how "tickled" the editor is by these conspicuous errors.

And by the way, an editor, in the French language "editeur," is a publisher. The editor is the "redacteur." There is no end to the misconstructions brought about by the similarity of "editor" and "editeur."

Uniting Easily Done

By L. Deimer

When we first had to unite colonies, we looked into some bee books and then put a newspaper between the colonies. During cool weather there were always some dead bees, but during hot weather most of the bees in the upper box smothered. So we decided that between a handful of bees massacred by alphabet ignorance and a basketful dead from studying the newspaper, the first would be preferable. We never used the newspaper again.

During some years of experience, we found the correct way of doing it. Use **no smoke**, or as little as possible; **put brood box on brood box,** supers, if there are any, on top, and go about your other work. There will be absolutely no fighting. Fighting there is if an excess of smoke is used or if a super divides the two brood chambers.

(We wish we could recommend the plan of our correspondent, but whether it is on account of the climate, or of the crop, we are quite sure that, in the middle or eastern states, the experience is exactly the reverse of his own. We have no need of uniting colonies in warm weather. We do it either in spring or in fall, when the colonies are weak and likely to become entirely worthless. That is evidently why Dr. Miller was sponsor of the newspaper plan and why we never had colonies smothered by the newspaper. As to uniting without using smoke at all, it will do during a honey crop. We have often exchanged whole tiers of brood combs or of supers, bees and all, during a crop, for the purpose of equalizing, without any fighting. But at the time when bees must be united, in fall especially, when the crop is over, it is necessary to put them in the condition of swarming bees, by smoke or heavy feeding, in order to have them unite properly, unless we use the newspaper plan.—Editor.)

The Use of Bees in Greenhouses

By A. Ankeny

Secretary, J. W. Davis Company
Davenport, Iowa

Years ago, when we first started raising cukes in greenhouses the pollen was distributed by hand with the camel-hair brush. This was all right for small houses, but, as the industry developed and we began to grow cukes on a larger scale, we found it slow and expensive, so had to put our heads to work to figure a way to cut the cost of the work.

While going through a cuke house one day we discovered bees at work on the blossoms. The bees came in through the open ventilators, and as we watched them work we soon discovered that they invariably went from the male blossom to the female, and it at once occurred to us that the bees must distribute the pollen in this way. We immediately decided to try out a hive, and to our surprise found they did the work perfectly. We have used the bees for this purpose ever since.

We use an average of twenty-five hives a year in our plant here, which consists of about 225,000 square feet of glass. The cuke blossoms do not contain any honey to speak of, so the bees are very short lived. This, of course, could be overcome by feeding them, but when fed they neglect the work we have for them and quite a few cukes are lost. It is better to buy more bees and let them last as long as they will.

(The use of bees in cucumber greenhouses is quite extensive in the eastern states, especially in the vicinity of Boston, where thousands of colonies of bees are needed every year. The practice of keeping the bees entirely within the greenhouses soon so depletes the colonies that they die out easily. Some growers overcome this by keeping two lots of bees and shifting fresh colonies to the houses from time to time, putting the weakened ones out doors to recover. Where the bees are needed in winter, of course, this is not possible. Summer growers also keep the bees in special windows in the houses with two entrances, one into the house and one to the out-of-doors. No shifting is needed then to keep the colonies in condition.—G. H. C.)

That Lawrence Article

I certainly agree with Mr. S. F. Lawrence in the July number, page 335, that each beekeeper should give 10 cents or more per colony to the League for advertising purposes.

I would be glad to do that if enough others would do it too.

I would suggest that the League advertise in the bee papers and ask all beekeepers who are willing to pledge 10 cents per colony or more, and, if enough will do so, notify them through the bee papers to send it in.

P. S. This is something I have had in mind for a long time, and would certainly be glad if it could be put over. Yours,

C. W. Fitzsimmons.

(Enthusiasm is what is needed. Subscriptions for advertising honey were gotten up several times, but the beekeepers at large did not take hold. Will they?—Editor.)

The Root-Langstroth Memorial Meeting

Mention of the Root-Langstroth memorial meeting to be held at Medina, Ohio, September 21, 22 and 23 has already appeared several times in our columns. The complete program was received after our September issue was for the most part already in type, and space will not permit of publishing it entire.

Many well-known men appear on the program. Speakers for the first day are F. B. Moore, E. R. Root, A. P. Sturtevant, S. B. Fracker, E. G. Carr, Penn G. Snyder, Jay Smith, H. G. Rowe, H. F. Wilson and E. F. Phillips. The afternoon session of the first day is a memorial to A. I. Root.

Speakers for the second day are R. L. Parker, J. E. Crane, James I. Hambleton, E. F. Phillips, C. B. Gooderham, Dr. Stephen Soudek and Governor A. V. Donahey. The afternoon session in memory of Langstroth will be addressed by Florence Naile, C. P. Dadant, Llewelln Bonham and Cornelius Betten.

The third day's program consists of addresses by C. L. Sams, J. E. Eckert, George H. Rea, C. P. Dadant, Francis Jager, F. Eric Millen, H. H. Root, E. L. Sechrist, Harold J. Clay and H. G. Rowe.

Beekeepers' campfires will be provided for evening entertainment and visits to the Root plant and apiaries on the afternoons of the first and second days.

Honey: Its Value in Heart Failure

The "Pharmacal Advance," a periodical claiming a circulation of 228,000, in its No. 78, publishes an article from Dr. G. N. W. Thomas, of Edinburgh, Scotland, from which we quote:

"The question is whether honey does not contain some special vitamines and if boiling destroys vitamines; then, presuming honey contains vitamines, there is an advantage in honey over commercial sugar. . . . In severe cases of malnutrition with heart weakness, I have found honey to have had a marked effect in reviving the heart action and keeping the patient alive, and I had further evidence of this in a recent case of pneumonia."

The editor of the magazine quoted adds some comments, which we quote in part: "On these findings, honey constitutes a valuable food, since it contains carbohydrates in a form suitable for direct absorption. . . . It seems that Dr. Thomas' plea for the considerate and extended use of honey has sound biochemical basis."

THE BEEKEEPERS' LOOKOUT

THE FRIENDLY BIRDS

Most beekeepers are nature lovers and find an interest in the wild life about the apiary. Here is a picture taken by F. W. Leubeck, of Knox, Indiana, of a robin which had its nest near his bee yard. Leubeck is a skilled photographer as well as a beekeeper, and, although the bees pay his bills, he finds much pleasure in many other things from which he has not made any money.

After seeing some of the pictures which Leubeck has taken, it is easy to see that I will have to stop crowing about mine. The robin shown at the nest is a sample of what he can do. Never have I found a man who, after even a little success in photographing wild creatures with a camera, has any further interest in a gun. It requires far more ingenuity to get a good picture than to kill the bird.

One who has given the matter no particular thought will be surprised at the number of different kinds of birds nesting around the average apiary site, and very few of them do the beekeeper any harm. Now and then a bird learns to watch the entrance of the hive for beemoth larvæ which the bees drive out.

I wonder how many more beekeepers there are who have pictures of wild birds or animals as good as Leubeck's robin?

Frank C. Pellett.

The Perret-Maisonneuve Work on Queen-Rearing

We mentioned the above work on page 329 of the July number. Since writing this, I have read the book through and I am pleased with the amount of research it indicates.

Mr. Perret-Maisonneuve gives his method, which consists principally in placing the proposed queen cells in cell holders so built that the queen cells are perfectly protected except on their tip. His method, too lengthy to be described here, also lessens the amount of the handling of the larvæ by the beekeeper.

But he does not give only his method. He quotes dozens of authorities on queen-rearing: Alley, Doolittle, Dr. Miller, Pratt, Root, Phillips, Barbeau, Bertrand, Sladen, Pellett, J. M. Davis, Jewell Davis, Jay Smith, Pridgen, Rea, Nolan, Wankler, Rauchfuss, Asprea, Giraud, Von Buttel-Reepen, Dr. Zander, Aeppler, Hopkins, Pechaksek, Mont-Jovet, Burkhardt, Planta, Prell-Koehler, and dozens of others.

Among his "intensive methods" he gives a method of making passages through the center of the combs that the bees will not close, by inserting in the sheet of foundation a little wooden tube, made of elder stem with the pith forced out. These little tubes are made of the same length as the thickness of the comb. They help bees to rejoin the main cluster when they happen to be astray on an outside comb, in small clusters, and likely to be chilled, if they cannot rejoin the main cluster by walking around the end of the comb. He has several other good suggestions, and a way to measure the size of bees and queens to prepare queen excluders which he makes out of celluloid, for he says very justly that bees of different races differ in size, the Cyprian being considerably smaller than the common bees or the Italians.

All in all, the book is worth reading for anyone who understands French.

C. P. D.

What Sort of Honey Does the Sainfoin Yield?

Sainfoin honey is highly appreciated in the countries where this plant is grown. In the "Gatinais" it is the principal honey crop and is very white. The Gatinais is a section of France comprising the present departments of Seine and Marne, Loiret, Nievre and Yonne. The name is derived from an old French word, "gatine," meaning "uncultivated land," but it is very highly cultivated at present. Of sainfoin Hamet wrote: "It is one of the best honey plants; its honey is of very high quality and its pollen is reddish." Bertrand wrote: "For a choice of location, give your preference to the vicinity of meadows; it is the esparcet or sainfoin, and the sage which in our countries yield the most appreciated and whitest honey." A later writer, Paul Lemaire, in his "Products of the Apiary" (Paris, 1918), wrote: "The honeys most appreciated in France are Normandy and Gatinais honeys, white honeys gathered upon the sainfoin and clover, together with Narbonne and Chamonix honeys, gathered on the rosemary, thyme and sage."

According to Hamet, the second crop of sainfoin honey is not equal to the first in quality or in appearance. This is true of other honeys. On the whole, we can assert that sainfoin honey is equal to the best clover honey. C. P. D.

The Skunk's Last Dinner

By L. Deimer

Probably many beekeepers have wondered what causes the shallow holes in front of hives, especially in outapiaries. Since the skunk goes about his work in the night and the beekeeper goes about his in the day, these depressions are the only evidence of the pretty animal with the dreaded defense.

A few skunks in a large apiary would confine themselves mostly to eating the dead bees in front of the hives, but where the signs of their presence are numerous it is certain that a dozen or more are paying rather regular visits. They are then living largely on live bees.

Their thick, long fur, leathery paws, and their ability to see at night, opposed to the inability of the bees to see at that time, provide them with a comfortable board. The damage they do during the warm seasons, by eating and irritating the bees nightly, must be considerable. A raw egg, adulterated with a little strychnine, is the last meal of the first skunk that touches his nose to it.

A Priceless Treasure

What is unquestionably the greatest treasure in the beekeeping world has recently been brought to light. This is the personal journal of Rev. L. L. Langstroth, "Father of American Beekeeping," which he commenced in 1851 and continued as long as he kept bees. The book contains more than five hundred pages, all in his own writing, and records many of the experiments made during his beekeeping career. Occasional entries were made during later years, the last being on August 10, 1895,—less than two months before his death.

The effort to find this journal would be a story in itself, but let it suffice to say that the quest begun in April, 1925, ended in March, 1926, when the writer received the book from Rev. Langstroth's grandchildren, to be used in the preparation

Langstroth monument, Dayton, Ohio

of his biography, after which it is to be forwarded to the Langstroth Memorial at Cornell University. This journal will not be kept with the other books, however, but will be placed in a fireproof vault in the main library, as no risk can be taken with such a rare and treasured volume.

Father Langstroth's last public appearance was at Toronto at a meeting of the North American Beekeepers' Association in September, 1895. To read Mr. Hutchinson's report of this meeting in old files of the American Bee Journal is to almost feel the thrill that ran through the assembly when this venerable father of more than four score years entered the room. As one man the audience rose to its feet, greeted him with three rousing cheers, and remained standing until he had been conducted to his seat upon the platform.

Out of a past rich with experience, suffering, and service to others, he talked, among other things, on the early importation of the Italian bees. Mr. A. I. Root wrote of this: "Why! that history of long ago, telling of the troubles, blunders and mistakes in introducing the Italian bees from Italy into America, should be handed down to coming generations. It should be embodied in some of the standard works on bees, in order to secure its preservation." Fortunately, Mr. Langstroth recorded in his journal that interesting "history of long ago," and, although the pages are yellowed now with age and the ink has grown dim, this story of the importation of Italian queens is clearly legible, and, with many other pages from the journal, will be included in the Langstroth biography.

Readers of the American Bee Journal will be especially interested in the following extracts:

"Have written the J. B. Lippincott Company that I should give the publication of the revision of my book to Dadant & Son. Wrote Dadant & Son yesterday that I saw no reason why we could not agree on terms." The exact date of this entry is not given, but we find later, "October 19, '85: Left Oxford on the 5th at 8 P. M. for Hamilton, Illinois, to see the Dadants. Had a very pleasant visit. Arranged for them to revise my book and publish it."

This journal will be shown at the Langstroth memorial service at the Medina meeting, September 21-23.

Florence Naile,
Sec'y, Ohio Beekeepers' Ass'n.

Dakota Conditions

A letter from South Dakota in June speaks of a heavy winter loss and a lack of rain. Other correspondence contains the same story. Evidently the winter problem in the Dakotas has not been entirely solved yet. The rains came, but the losses of bees had to be made up by increase or the purchase of package bees. One beekeeper writes that he would easily have been ahead financially if he had let his bees die and bought new this spring. It is a moot question whether this is proper or not, but it is some indication of the severity of conditions as they come in parts of the Dakotas.

Recent letters from North Dakota report that the honeyflows are as good as ever, supers filling for strong colonies with pleasing rapidity. In the Black Hills, Pellett found conditions for honey the best he has ever seen. This is music to a beekeeper, but the game is never played without some discord, as the earlier reports show so well.

Intoducing a Queen Into a Queenless Colony with Laying Workers

By Brother Alphonse Veith

Towards the end of April I found a queenless colony of bees with some drone brood in worker cells, but no other brood could be found. I gave them a frame of brood, thinking they would start one or more queen cells, and at the same time I wrote for a queen from the South. When the queen arrived I examined the frame of brood given them before, but no queen cell could be found, so I felt sure that the new queen would not be accepted. As it was a two-story hive, I brushed all the bees off the combs containing honey, but not from those containing the drone brood. This I left with the bees and carried the hive with bees to a new location. The comb containing the honey I placed in another hive body on the old stand. Now, I first took two frames of brood with bees from other hives and also placed them in the hive on the old stand, and between these two combs I placed the queen cage with queen. In a few days the bees that were carried to a new location had returned, but evidently not the drone layers. Now, after about ten days, I find that the queen was accepted. I feel sure that the queen would have been killed if I had not treated the colony in this manner.

Indiana.

Selling Unripe Honey

By L. H. Cobb

In our town a young fellow had some bees, and when they had made a nice little lot of honey he thought to extract some of it and sell at once. He got the extractor from a neighbor and extracted all the combs that were pretty well filled, even though many had but small portions of the honey sealed. The result was a thin honey that would have spoiled his trade if he had had any, and surely would not build a trade, but the worst feature was that it would not keep. Such honey will soon sour.

This was an extreme case, but many beekeepers will take off honey before it has been thoroughly ripened by the bees. Only well-ripened honey will keep under conditions that are not of the best. Bees will leave a good many cells open long after they have sealed a part of the comb, but the honey in these open cells has not been ripened sufficiently, and to extract or to sell as comb honey is not giving just value.

On the Inversion of Queen Cells

By Tarlton Rayment

Author of "A Cluster of Wild Bees," "Money in Bees," "Profitable Honey Plants," Etc. —

JUDGING from recent correspondence, there is still a certain amount of misconception regarding the effect of inverting queen cells. Once more I wish to reiterate the fact that inversion, **per se,** will not kill young queens. Whenever the occupants of inverted cells have died their death has been the result of shock produced by the rough bumping of the hive during the act.

I have experimented with many hundreds, nay, many thousands, of cells of honeybees **(Apis),** furrow bees **(Halictus),** cliff bees **(Eurygloss a),** and many other genera **(Paracolletes)** of honey gatherers **(Megachile),** and you, sir, may be rather surprised to learn that out of over 2,224 species of bees of which I have compiled a census, only a dozen (approximately) make cells the mouths of which open downward. So few are the exceptions that one might regard as a bee rule the fact that all bee cells shaped like the queen cell of the hive rest on their bases with the openings on top.

I have certain ideas in regard to the pendent position of queen cells, but since that discussion is more of academical than of practical interest I must refrain from elaborating it. As many of your readers are well aware, the form of the queen cell of the hive is common to many hundreds of wild bees, some of whom construct urns of clay. An American **Osmia** is an adept at that pottery ware. The **mason bee, Chalicodoma,** makes her cells of stone concrete, and the French species, **Muraria,** is famed for her mosaic work. The most primitive of all bees, the Australian cliff bee, rears but two children, which are accommodated in wonderfully delicate skin cells. But there is no need to recite a list.

Now I have inverted cells of many species and also placed them on their sides, and if the operation be performed with sufficient care, no harm results to the occupants. Just how much concussion is necessary to cause death I have been unable to determine, because it varies greatly with the different species.

Let me relate a few experiences: I have removed hundreds of queen cells from the combs, and should it so happen that the queen larvæ simply fall from one side of the cell to the other it is often sufficient to cause death. But there are certain stages when the larvæ may be dropped an inch or two onto a hard surface and yet survive.

The egg of the furrow bee is an extremely delicate object and cannot be handled with the freedom that one uses with the tough egg of the hive bee. The slightest touch and the charion of the Halicti egg breaks and the whole instantly dissolves into a speck of moisture.

On the other hand, I have chopped out pieces of hard sandstone containing the larvæ of the Australian cliff bee, and have brought home the cream-colored grubs and reared them to maturity. (It took over 160 days for the "grubs" to mature. Details and diagrams of this remarkable bee are given in my work on the wild bees.) Indeed, when I was studying the life history of this most elemental bee I had the larvæ exposed under the microscope for long periods, especially when making drawings. I have had them roll over and fall an inch or two onto a polished hardwood table without suffering any damage. The normal position of this bee's cells is horizontal, but I have turned them in all directions without injuring the larvæ.

Quite recently I received from a youthful naturalist in New Zealand two live larvæ of the wild bee, **Dasy colleteo.** They were folded between strips of knitted woolen cloth and inclosed in a tight two-ounce tobacco tin, which in turn was sealed in a brown paper covering. The larvæ were fourteen days in transit, all of which time was spent in the mail bags. They were on board ship for seven days while covering the 1200-mile sea voyage, but they withstood all the rough and tumble of the mails and are uninjured.

My studies of the wild bees, especially the hitherto neglected Australian ones, have revealed to me the solution of many hive bee problems, and I find that one unacquainted with the life histories of the wild bees loses much knowledge of the hive bee, so the "born" apiarist will not be satisfied to be on friendly terms with only one species of the apidae.

But I am wandering away. I was surprised to discover that the skin cell of the cliff bee is not a complete cradle, for the end is missing; it is like the breakfast egg with "the top" chopped off, and is nothing more than a small replica of the hive queen's cocoon. Have you ever been

told that the thick base of the queen cell is the reason for the queen's refusing to spin a complete cocoon? Well, the skin cradle of the cliff bee is utterly devoid of any protection, though it is of identical shape, but reversed.

But you, Mr. Editor, will want more of the practical aspect. You will require to know the incidence of this article on commercial apiculture. Very well, I conclude by saying once more that all my experiments prove that inversion of queen cells has never killed one queen in her cradle. Oh, some reader is going to aver that a few bees are geotropic. Well, I have not found any to be so, though my studies have been confined to the genera noted.

(We are not astonished at the assertions of our learned contributor, Mr. Rayment, for we have handled queens in cells with considerable success. The editor more than once carried queen cells, about to hatch, from one apiary to another, on horseback, without injury. The matter has not a great deal of importance, except as a point in the physiology of insects.—Editor.)

Famous Beekeepers

Many famous folks have been more or less interested in beekeeping. Among them we might mention Harriet Beecher Stowe, the author of "Uncle Tom's Cabin," which made such a powerful appeal in behalf of the slave a generation ago.

The Illustrated Bee Journal for December, 1869, contains an article by Mrs. Stowe and her sister, Catherine Beecher, copied from the "American Woman's Home," entitled "Can Women Keep Bees?" The advantages of beekeeping as a business for women were described by these talented writers and very probably had an influence on the readers looking for outdoor employment a generation ago.

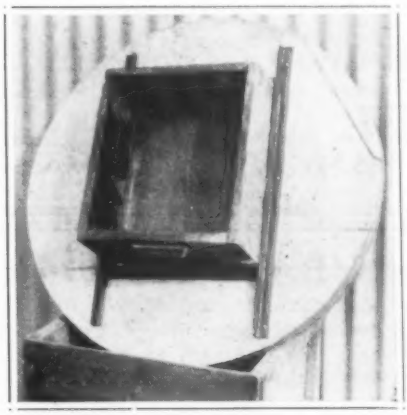
The Dadant Memorial

The memorial meeting in honor of the late Charles Dadant held at Platteville, Wisconsin, in which the bee men of Iowa, Minnesota and Nebraska joined with the Wisconsin beekeepers, was attended by hundreds of beekeepers. Not only was a rousing welcome given to the Dadant family who were present, but compliments were sent by mail and wire. A message of congratulation was received from Bienenvater, of Vienna, Austria, by radiogram.

Our last forms are in press as the meeting is in progress, so a full report must await our October number.

A Useful Straining Arrangement

J. H. Porter, of El Centro, California, has a very good plan for straining extracted honey, as shown in the pictures herewith. As will be seen, he has a double strainer which catches all the coarse material, such as bits of capping, which would otherwise need to be skimmed from his tanks.



Strainer in place in top of tank

He has a tight-fitting metal cover for his settling tank, with an opening the size of an ordinary comb honey super. This opening is covered with wire screen fine enough to stop any coarse material and at the same time coarse enough to permit the honey to strain rapidly. Over the bottom of the super a second screen is placed. The one picture shows Mr. Porter with the honey box, made of a super with screen bottom, in his hand, and the tank cover with opening also covered with screen, leaning against his honey house. The other picture shows the tank cover with the honey box in place.

Since most of the screenings will be caught in the first box, it can be readily removed and cleaned. When the tank is empty, the cover can be removed and the screen-covered opening also cleaned. One big advantage of this plan is that, no matter how many bees or flies may chance to find their way into the building, they cannot possibly get into the honey in the settling tank. But we had better not allow either to get in, anyway.

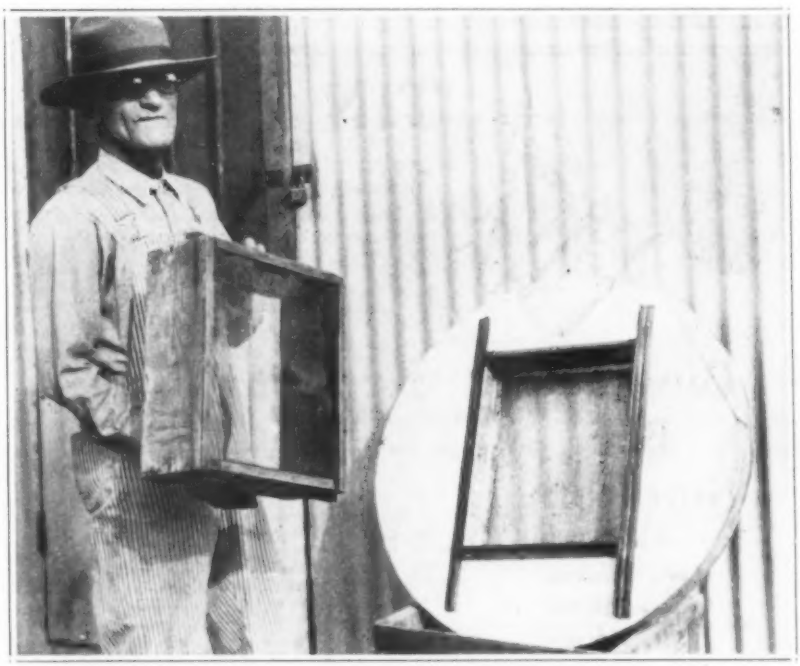
Another Disease Bulletin

The Extension Service of the Iowa State College of Agriculture has issued a new bulletin, entitled "Control of Bee Disease and Pests." The author's name does not appear on the bulletin, but we presume it is by Prof. F. B. Paddock, State Apiarist.

The descriptions of the various diseases are full and the treatments given at length. The formalin treatment of foulbrood combs is included.

In addition to the diseases commonly recognized in similar bulletins, such pests as bee lice, wax-moths, ants, mice, etc., are included.

It is a publication well worthy the attention of any interested beekeeper. Those wishing copies should write to Prof. F. B. Paddock, Ames, Iowa.



J. H. Porter's double strainer

Spray Poisoning Bees

In the July number of the American Bee Journal, just at hand, you have an editorial on the subject of the effect on bees of spraying fruit trees which, while good as far as it goes, does not cover the whole question in that it is apparently based on fruit growing conditions as practiced in the East and is not fully applicable to the conditions in the fruit belt on this Pacific Coast, which differ mainly in that orchards, under irrigation, are mainly in cover crop, either of vetch or alfalfa, and the serious danger, to the bees, comes when fruit trees are sprayed while cover crop is in blossom. Apparently the article in question was not written by Mr. Pellett, as he covered the situation well in his article on keeping bees in New Mexico, on page 318 of the July number last year. Mr. Pellet was also through this Okanagan Valley, two years ago, so will be familiar with our conditions.

While the menace is not as serious with us as is evidenced further south, it is becoming increasingly so as the codling moth infected area tends to spread, and energetic control measures, which seem to mean, first and last, spraying with arsenate of lead and then more arsenate of lead.

This is very largely a commercial orchard district and I have a fair opportunity to test out conditions, as I am running a couple of hundred colonies, scattered in half a dozen outyards within a five-mile radius. While it would be hard to offer absolute proof of the havoc wrought by poison spray applications, without possibly the use of those elaborate counting machines one hears about,

recording automatically the rise or decline of colony population, yet when one is visiting colonies regularly each week and keeping close tab on conditions, and is familiar also with spraying operations, the conviction is forced home that the danger is more serious than most beekeepers realize. Our local conditions are such that bees build up early and very strong during fruit blossom, which commenced this year early in April. Many colonies occupied four stories at the end of fruit bloom, and with most of that surplus converted into bees by the time the honeyflow commenced early in June, hopes were high for the big crop. Then, just as the cover crop came into bloom, along came the second or third application of arsenate of lead.

On his next visit the beekeeper opens up his big (?) colonies and wonders why the supers are apparently deserted. Swarmed! Maybe. No, sir, for the queen is still on the job and the two-story brood nest still has the same amount of brood and plenty of young bees hatching out. But the field bees—where are they? Maybe a handful or two may be lying dead in front, but of the rest one can only guess. Strong colonies, of course, seem able to recover somewhat as the brood emerges, but it is hard to estimate the actual loss of crop. The difficulty will never be overcome until a satisfactory repellent is developed which, while distasteful to the bee, does not detract from the efficiency of the spray material in codling moth control. When we have such a repellent, then will be the time for legislation making its use compulsory. About the only measures we can suggest to sympathetic fruit growers are that spray be applied as carefully as possible to avoid unnecessary drip upon the cover crop or that it be applied before and not after crop is in bloom, or, if necessary in the latter case, that cover crop be either cut or disked before trees are sprayed. Fruit growers are more and more realizing their obligations to the honeybee, and many are willing to cooperate for mutual self. G. F. Pearcey.

(This question of poisoning bees through the cover crop under the trees has already been discussed, but this article is timely, as it shows that the question covers a greater field than commonly thought. Mr. Pearcey lives in the Okanagan Valley of British Columbia. The poisoning of bees in this way, therefore, is not confined to the West and South of the United States, but also exists in western Canada.—Editor.)

More About Intelligence of Bees

By Allan Latham.

YES, indeed, as Mr. Lovell says, bees do possess intelligence. (See page 169.) There surely is no form of animal life which does not possess intelligence. Sometimes I think that plants show a form of intelligence. The roots of plants will grow fastest on the side where there is the most food. All forms of life respond to outside conditions, and if they did not do so would cease to live. We can call this response to outer stimuli intelligence, but we should err greatly if we dignified it with the term reason.

No one loves the bee more than I, and for over twenty years I believed that bees reasoned. I even wrote articles trying to prove that bees reason. I had studied the behavior of bees for twenty-five years before I reluctantly gave up my belief that they had powers of reasoning, and was literally forced into a belief that all their acts are due to reflex nerve action, to outer stimuli under the control of well-defined instincts.

Bees and other insects have fairly good memories. The illustrations offered by Mr. Lovell are of the simplest sort, and did the bee not possess the inclination to return to where it has found a load, that insect would not today be in existence. One of their strongest instincts is to find sweets and, finding the same, to carry same sweets to their hive.

I can furnish an instance much more to Mr. Lovell's needs. Nearly forty years ago I observed my bees getting honey from a rich bed of petunias. Now everyone knows that petunias have too deep a corolla for the honeybee to get at the nectar, though these flowers are very generous with their nectar. Why, then, should bees be hovering so numerously over those petunias? It did not take long to find out. It seems that bumblebees cannot reach all the nectar in those deep corollas, and so the bumblebee, with her heavy mandibles, gnaws a hole at the base of the tube. I found that nearly every full-blown flower had a roughly gnawed hole at the base of its tube. The honeybees had found these holes and were taking advantage of them. Did they show reason by so doing? Not in the least, no more than they would to return to a bit of honeycomb set out for them.

On this same page Mr. Auld tells how to protect hives from burglars. His method would be all right to stop a chance thief who happened to see the hives and was without tools, but a chain and padlock would be of no value for that kind of thief who leaves home with a crowbar, a hammer, and a cold chisel or a file. I feel sure that the readers of the Journal will enjoy hearing of an experience I once had.

Up to some twelve years ago I had a score or so of let-alone hives way down on Cape Cod, in and about Provincetown. Some of these hives were among the beach-plum bushes, out of sight of all houses. One in particular was in a small ravine just over the line in Truro, the next town to Provincetown. This particular hive had year after year given me a good surplus, and each summer as I went to the Cape I found from fifty to sixty pounds of splendid goldenrod honey in that hive. One summer it was not there, but there was plenty of evidence that it had been there. To make matters perfectly clear I will say that we lived at our cottage only during July and most of August. The hives were left, therefore, for ten months without any care. As the crop was stored mostly in the fall and same more from fruit bloom in the spring months, the honey was not gathered by me until we went to our cottage early in July.

That next fall I took more care than usual in closing up the hive by fastening on the cover more carefully. It availed me nothing, for the next July I again saw that a goodly crop of honey had been taken in by someone. This person did not kill the goose which laid the golden egg, for every time all frames were carefully put back and the hive closed as it should be. Yet the tiny fragments of comb in the store chamber of the hive, and the marks of cut combs on the top bars, showed that a crop had been garnered and approximately the amount of that crop.

That next fall I carried a fairly heavy chain with a good, strong brass padlock over to this hive and did just what Mr. Auld advises. The next July I found the chain lying by the hive, broken. Inside the hive I found evidence that the burglars had been well repaid for their labors.

Then and there I made up my mind that I was not going to furnish any more honey for those thieves from that hive, at least. Before leaving the Cape that next fall to take up my duties as a teacher, I laid the following trap: I removed brood, queen and most of the bees from the hive to my cottage. I left two

combs with bees enough and honey enough to keep the hive populated into winter. I filled a sack with sand, and, believe me, I did not have to go far for the sand, and placed this sack of sand in the store chamber of the hive. I had come with a pound of twelve-penny nails. I nailed that cover on—yes, I nailed it on!

One of the first bits of news I got when we arrived at our cottage the next summer was that one of my hives had been molested. Strangely enough, the very fellow whom I suspected of doing the thieving was the one to impart this news. When I got opportunity I went the two miles to the scene of the operations. The hive, heavy with its load of sand, had been rolled down the tiny ravine to the flat below. The sweet-hunters, failing to get off the cover, had pried off one side of the hive.

I had sacrificed the hive, and I would gladly have given a five-dollar bill to have had the privilege of sitting in the bushes to view the wreckers at their work. What they said when they found that sack of granulated honey (?) must have been rather entertaining, if slightly shocking.

Guatemote In Arizona

The remarks made in June number by our friend Pellett on the guatemote, or water willow, proved very interesting reading to me, at least, as I have had some experience with the plant and have never seen mention of it in print.

In the spring of 1924 I had bees on the Salt River just at the intake to the Roosevelt Lake, which supplies water for the irrigation of Phoenix and surrounding territory. There had been an extremely wet winter and the water willow bloomed profusely. It yielded well that year and I found an average of twenty-five pounds of honey in the hives immediately prior to the mesquite flow. The honey was moderately light in color, though I do not think it can be compared with mesquite. It yields in both spring and fall. In 1923, a drought year, it did not yield an ounce. In late 1925 and early 1926 the drought proved so extreme that the great lake almost went dry and for many miles it was possible to see the bottom. In no time the bottom became converted into huge areas of water willow. With the great rains of this winter and spring, however, the lake is almost full and the bee pasture is no more. I view it as quite a useful plant in the spring.

W. A. Walsh.

Crop and Market Report

Compiled by M. G. Dadant

For our September crop and market report, we have asked our reporters to answer the following questions:

1. How is the crop compared to last year?
2. What prices are being offered for honey?
3. In your opinion should last year's honey prices be maintained?
4. How is the honey demand?

CROP COMPARED TO 1925

Right at the start, it is the writer's opinion that the total crop for the United States will be considerably less than it was in the season of 1925, and his opinion is based on reports from practically all states. We give below a list of states from which the average crop reported is less than 1925, as follows:

Vermont 75%	New Jersey 20%	Georgia 85%
Connecticut 75%	Maryland 25%	Mississippi 40%
New York 50%	Virginia 90%	Pennsylvania 30%
Ohio 50%	Wisconsin 74%	Michigan 90%
Minnesota 65%	Illinois 30%	Iowa 70%
Missouri 40%	North Dakota 80%	South Dakota 50%
Nebraska 60%	Kansas 50%	New Mexico 35%
Arizona 75%	Colorado 60%	Wyoming 60%
Montana 90%	Utah 80%	Oregon 50%
Washington 70%	Ontario 50%	Manitoba 80%

There are very few localities reporting as high a crop, as follows:

Maine 150%	Alabama 125%
Kentucky 100%	Northern Michigan 100%
Texas 180% (180% of last year, but only 80% of normal crop)	Idaho 100%
	Tennessee 100%
	Louisiana 110%
Oklahoma 125%	Southern Indiana 100%
Massachusetts 120%	California 140%

The reader will readily see that with as many states reporting deficit of last year as there are, it will be very easy to take up the surplus crop, especially as Texas consumes practically all its entire crop, even in the heavier years.

It was anticipated earlier in the year that California would have a very large excess to ship out of the state, but this does not now seem possible. The only sections reporting a heavier crop than last year are the extreme southern parts of California. Many locations have a failure and northern California is not having its usual heavy crop.

Some reporters are frank to state that they believe honey will be selling much higher in price before the season is over and that California can almost consume all of its own honey at home.

PRICES OFFERED

Undoubtedly, this is a buyer's market, rather than a seller's, and this accounts for many of the low prices offered for honey, especially in the big producing areas. We learn of Arizona offers of 5 to 6 cents for carload lots. California, 5 cents for carload lots, amber; 6¾ to 7 cents carload lots, white. One offer in Iowa is for 8½ cents, and offers in North Dakota have run from 7 to 9 cents.

Colorado offers are in the neighborhood of 8 and 8½ cents. Wyoming reports an offer of 7 cents for white honey, Montana one for 8 cents. There are two reports from Utah for offers on honey, one for 7 cents and the other 7¾.

In Canada, we understand that brokers are offering 10 cents per pound for good white honey, which is 2 cents per pound lower than in 1925.

As stated above, this appears to be a buyer's market, and the buyers undoubtedly having carried over some little stock of last year's honey, and having been offered carlots of old honey not very long ago, are not in a position to make as high offers as started the season last year.

Our frank opinion is that the market is going to start low this year on account of the fact that there will be some honey producers who will be anxious to unload and will sell at very low prices.

Undoubtedly, however, the market should improve.

SHALL WE MAINTAIN 1925 PRICES?

Reporters were practically unanimous in urging the maintaining of last year's prices, and stating that undoubtedly they could be maintained in their own localities. There were several who urged a higher price than 1925, and a very few who thought that it would be difficult possibly to continue with the prices of last year. These reports of possible lower prices come from the following states: Kentucky 1 cent lower, New Mexico possibly 1 cent lower, Arizona possibly 1 cent lower, Texas possibly lower.

DEMAND

As is usual for this season of the year, the demand for honey is not heavy, although several reporters stated that the demand has picked up already. There were a few reports of very slow sale, and the most of the reports indicated that the sale was average or a little better than average.

CONCLUSION

There are, of course, several outstanding factors which will determine the ultimate price of honey during the cooler fall season. One of these is the sugar price, the second is the fruit price, and the third is the condition of the honey market itself as influenced by the purchases of beekeepers to supply their demand.

We believe that this year, of all years, will be a vital one for beekeepers in the short sections to purchase honey to supply the demands of their customers, rather than let this demand go begging.

A little effort on the part of the beekeeper who has had a short crop this year will undoubtedly help move the crop of his fellow beekeeper and thus help maintain or increase the price of honey.

Indications are that the fruit crop is considerably in excess of last year, especially peaches and apples.

Sugar apparently has reached rock-bottom prices, and market reports show a tendency for a slight increase in the prices.

One thing which has appreciably hurt the price of honey during the past year is that our exports have been far under what they were during 1924, and it is sincerely to be hoped that this export of surplus can be raised again this year to the old levels to dispose of a considerable part of the home production.

It is undoubtedly true that many of the wholesalers and dealers in honey have carried over a considerable stock from last year, and are thus in a position of not being anxious buyers. However, if the shipper of honey can hold his crop until the last year's surplus has been disposed of, we believe that prices will be better than at present.

There is no indication whatever that there will be any great change in the retail price of honey. Prices suggested for the region east of the Mississippi and north of the Ohio would be as follows: Comb honey, retail, 30 cents per section; extracted, five-pound pails $1.15, ten-pound pails $2.00. These are minimum prices and would raise higher as you move eastward.

The North Dakota Association have recommended the following prices: Five-gallon cans, retail, $8.40, ten-pound cans $1.75, five-pound 90 cents.

We hope in our next issue to give a better approximation of what the retail prices should be in different sections. These should, however, approach last year's prices, with the exception of Texas, where the crop has been unusually large and where there is a fluctuation.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisements of used beekeeping equipment or of bees on combs must be accompanied by a guarantee that the material is free from disease or be accompanied either by a certificate of inspection from an authorized inspector or agreement made to furnish such certificate at the time of sale.

BEES AND QUEENS

SUPERIOR ITALIAN QUEENS by return mail. One to forty-nine, 60 cents each; fifty and up, 55 cents each. Absolute satisfaction and no disease guaranteed.
W. C. Smith & Co., Calhoun, Ala.

WILL GIVE A SAMPLE—Select guaranteed pure mated Italian queen to all answering this ad, for 75c. See display ad, page 456.
E. E. Mott & Son, Glenwood, Mich.

SEPTEMBER QUEENS—The kind that winter well and get the honey. One untested 75c, 25 for 60c each. Can get queens right out to you.
D. W. Howell, Shellman, Ga.

QUEENS BY RETURN MAIL—Our two queen yards, with more than a thousand nuclei and three experienced men, are prepared to take care of your queen orders promptly. Why tolerate just ordinary queens when the best queens cost so little? The honey production records of our queens are unsurpassed. One untested 80c, twelve for $9.00; one tested $1.50. Safe arrival and satisfaction guaranteed. No disease; inspection certificate with each shipment. Write for circular and prices on quantities.
J. M. Cutts & Son,
R. No. 1, Montgomery, Ala.

GOLDEN UNTESTED QUEENS — Gentle and good honey gatherers as can be found; $2.00 each. Tested, $4.00 each. Best breeders, $20.00. Over thirty years a Golden Italian breeder.
J. B. Brockwell, Barnetts, Va.

PETERMAN'S SELECT ITALIAN QUEENS are solid patch layers. Try them and see meaning strong colonies. We do not take them as they come, but select for laying qualities, size and gentleness. They are early risers and late workers. Prices: One, $1.00; six, $5.50; twelve, $10.00; fifty, $75.00. H. Peterman, Lathrop, Calif.

REQUEEN with Hollopeter's strain of Italians. Unlike any other and improving each year. Choice untested queens, 1 to 20, $1.00 each; 20 to 100, 80c each. Circular. J. B. Hollopeter, Rockton, Pa.

GRAY CAUCASIANS—Of the very best breeding stock. Queens are priced as follows: One, $1.50; six, $8.00; twelve, $15.00.
Bolling Bee Co.,
Rt. 1, Bolling, Ala.

SIMMONS QUEENS—Golden and Three-band. One, $1.00; six, $5.50; twelve, $10.00. Nuclei (queen included), two-frame, $5.00; three-frame, $6.25. No disease. Satisfaction assured.
Fairmount Apiary, Livingston, N. Y.

FOR SALE—Three-banded Italian queens, 80c each; six for $4.75; twelve for $9.00. Tested queens $1.50 each.
Robert B. Spicer, Wharton, N. J.

TRY my Caucasian queens. Tested, $2.00; untested, $1.00. Italian, 60c. By return mail. Yard inspected for protection of diseases. Peter Schaffhauser,
Havelock, N. Car.

GOLDEN ITALIAN QUEENS for balance of season at reduced price. The big, bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, 85c each; six, $4.75; twelve, $9.00; $65.00 per 100. Tested, $1.50 each. Safe arrival guaranteed.
E. F. Day, Honoraville, Ala.

HONEYTIME ALBINOS are the little moderns of beekeeping. See page 466.
Ransom M. Bliven.

BRIGHT three-band Italian queens with special introducing cage. See display ad for prices. J. F. Diemer,
Route No. 3, Liberty, Mo.

ITALIANS—Strong, hardy, vigorous. None better, few equal. Untested, $1.00; tested, $1.25. No disease.
Chas. W. Quinn, La Belle, Fla.

SALIDA APIARIES sell only one grade of queens, the best light Italians. Our breeding stock the best obtainable. Prices right, $1.00 each; 6, $5.50; 100, $75.00, after June 1st.
Salida Apiaries, Salida, Calif.
T. L. Nicolaysen, Prop.

GOLDEN Italian queens, untested, $1.00 each; 6 for $5.40; 12 for $9.60. Tested, $1.50. Select tested, $2.50. Three-banded Italian queens, 1 for $1.10; 6 for $6.00; 12 for $10.80. No disease, safe arrival and satisfaction guaranteed.
Sam Hinshaw, Randleman, N. C.

GOLDEN Italian queens, untested, 1 to 5, $1.00 each; 6 to 11, 90 cents each; 12 or more, 80 cents each. Tested, $1.50. Select tested, $2.50. No disease, safe arrival. Twenty years a breeder. Satisfaction guaranteed.
D. T. Gaster, R 2, Randleman, N. C.

PURE ITALIAN QUEENS—Untested $1.00; tested, $1.50; 2-lb. package, $3.00. Add price of queen wanted. Safe arrival guaranteed after May 10. Write for prices on colonies. Birdie M. Hartle,
924 Pleasant St., Reynoldsville, Pa.

LATHAM'S "She-Suits-Me" untested 3-banders, $2.00 per queen from May 15 to June 5. After June 5, $1.00 each. Packages and nuclei. Introduction insured. Send for circular.
Allen Latham, Norwichtown, Conn.

FOR SALE—Choice bright Italian queens. I have been building up this strain for the last 22 years for vigorous hustlers, good winterers, gentleness and fine color. These queens will equal the best on the market. Health certificate goes with queens. Prices: Untested queen, $1.25; 12 untested queens, $12.00; 1 breeder, $10.00.
Emil W. Gutekunst,
Colden, N. Y.

LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1, $1.00. Tested, $2.00.
A. W. Yates,
15 Chapman St., Hartford, Conn.

FOR SALE—Italian queens ready May 15. One queen, $1.00; 6 queens, $5.50; 12 queens, $10.00. W. W. Talley,
R. 4, Greenville, Ala.

GOLDEN QUEENS, producing bees yellow to tip and improvement over last year's raising, untested, $1.00; 6 for $5.00. Tested, $2.00. Satisfaction guaranteed. Print your address.
H. G. Karns, Victoria, Va.

BRIGHT ITALIAN QUEENS—One, $1.00; 6 for $5.00 or 12 for $10.00. Write for prices on large orders or package bees.
P. B. Skinner, Greenville, Ala.

FOR SALE—Italian bees and queens: 2-lb. packages of bees with queens, $3.50 each; 1-lb. package with queens, $2.50. Queens bred with the greatest of care.
O. P. Hendrix, West Point, Miss.

GOLDEN THREE-BANDED and Carniolan queens. Tested, $1.00; untested, 75c each. Bees in 1-pound package, $1.50; 2 pounds, $2.50; 3 pounds, $3.25. Safe delivery guaranteed. C. B. Bankston,
Box 65, Buffalo, Leon Co., Texas.

GRAY CAUCASIANS, GRAY CARNIOLANS—Purity of race guaranteed. Fifteen years of real breeding and expert selection are behind them. Strong, long-lived, and as producers of commercial honey they have no superiors and few equals. Try them. Untested, $1.50; tested, $2.50; select tested, $3.00 each. Ten per cent off on lots of one dozen. Rates on 100 or more. No disease. Chas. W. Quinn, La Belle, Fla.

TEN YEARS of experience in breeding queens of quality Goldens, also gray Caucasians. Golden queens: one, $1.25; dozen, $11.50. Gray Caucasians, one, $1.50; dozen, $15.00. Pure mating. Safe arrival guaranteed in United States and Canada.
Tillery Bros., Rt. 5, Greenville, Ala.

FOR SALE

SHORT CROP—Will not use entire lot of cans and pails contracted for. Offer same to beekeepers at reduced prices. Direct from factory.
Edward A. Winkler, Joliet, Ill.

FIFTY COLONIES—Good condition; two-story, eight-frame hives. Price $10.00 each. Phillip Smith, Ottawa, Kans.

200 COLONIES of bees for sale. Equipped with extracting supers and drawn combs. Guaranteed free from disease if inspected in yard before removed. Priced for quick sale. Only cash deal considered. In good location at present time.
Creech & Sons, Central City, Neb.

PURE CLOVER HONEY—In any quantity.
Roland Brandt, Decorah, Iowa.

FOR SALE—Comb honey shipping cases. Several thousand, holding 24 sections 4¼x4¼x1⅞, single tier, glass front. Used once, like new. 25c each. Two 60-pound cans to case, 50c a case, F. O. B. Chicago.
A. L. Haenseroth,
4161 Lincoln Ave., Chicago, Ill.

FOR SALE—25 colonies in 10-frame hives, $6.00; 10 colonies in 8-frame hives, $5.00. Metal covers, painted white; 25 new 10-frame L supers, painted white twice. Frames made slotted bottom bars, $1.25 each; ten 10-frame L hives complete N. P. metal covers, $3.50; L combs, 15 cents apiece, drawn from full sheets of wired and three-ply foundation. Supers for 60 cents. Numerous other articles. Never had disease in the county.
Enoch Anderson, Menahga, Minn.

SHIPPING CASES FOR SALE—225 clean, double-tier glass-front, regular beeway. Most of them have two clean corrugated pads. Six to carrier $1.50 per carrier, freight paid to points same as Chicago.
L. D. Taylor, Chandler, Okla.

FOR SALE—Hubam sweet clover seed, recleaned and scarified. Write for prices.
Dadant & Sons, Hamilton, Ill.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn, odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.
Dadant & Sons, Hamilton, Illinois.

HONEY AND BEESWAX

FOR SALE—1926 crop of clover and clover-basswood honey in new 60-pound cans.
Irvin Nordgaard, Peterson, Minn.

HONEY WANTED—Several thousand cases white clover comb honey, size 4¼x4¼x1⅞. Must be white and strictly graded, fancy and No. 1. No other grade wanted; also extracted. Send sample, give quantity and price wanted. We pay cash.
A. L. Haenseroth,
4161 Lincoln Ave., Chicago, Ill.

FOR SALE—New crop white clover honey in new 60-pound cans at 11c per pound. Chunk honey, 5-pound pails, $9.00 per dozen. Sample 20c.
Joseph H. Hoehn, Ottoville, Ohio.

Honey Before Home Bureaus

There is a suggestion for beekeepers who dispose of their honey in their home communities in the way in which food concerns are capitalizing the interest of farm women in the source of supply. The increasing use of motor cars on the farm, lessening time and distance, is a big factor.

It is no secret to beekeepers that the women are organized in Home Service Bureaus, under the auspices of the Federal Government, with Home Service Advisers in practically every county. But the possibilities of getting the women interested in wholesale numbers in honey as a food may not have occurred to them.

When two hundred members of the Kankakee County, Illinois, Home Bureau, and their families, held their annual picnic last summer at Kankakee, time was taken from the customary program festivities for motor car runs to several sources of food, drink and wearing apparel supply, such as a hosiery plant, an ice cream factory, furniture factory, bottling works, telephone exchange, and so forth.

Not all farmers are beekeepers—why shouldn't the honey factory be equally interesting?

New California Bulletin

A new bulletin on American foulbrood has recently been issued by the California College of Agriculture. This bulletin, written by G. H. Vansell, departs from the usual method of treatment and recommends sterilization of the combs by immersion in a solution of formalin and soapsuds. Full directions are given for the preparation of the solution and the handling of the combs. Several references to Vansell's method of treatment have appeared in the columns of the American Bee Journal, but this is probably the first official bulletin to recommend the formalin treatment rather than the long used method of burning. Those interested will do well to write to the University of California, at Berkeley, for a copy of circular 307, entitled "American Foulbrood and Its Control."

Burr Combs

Wildcat Honey

By L. C. Dadant

Wildcat Springs Park, Hamilton, Illinois, is one of the old landmarks and interesting places that is visited annually by thousands of people. It was so named because, back in the early days, a wildcat was shot on the premises. The owner of the park later secured a fine specimen, had it mounted, and placed it on a pedestal inside of a small cave, from which issues one of the most wonderful springs in western Illinois.

Another more wonderful cave, however, gave us a great thrill during the summer of 1920, and especially in February, 1921. A certain Mr. X wrote us in the summer of 1920, enclosing a clipping from a Texas paper. This clipping told of a wonderful cave that had been discovered by a Texas ranger. The cave, it seemed, was inhabited by bees who had made it their home for centuries. Millions of tons of honey, stored in immense combs measuring twenty to thirty feet in height and width, filled the cave. The bees, when issuing from the opening, darkened the sun, and their roar was likened to a hundred passing railroad trains. It was a virgin proposition so rich in honey and beeswax that the discoverer was anxious to share it only with those who would be willing to keep it in strict confidence.

Nothing came of the matter until the League meeting in February, 1921, held at Indianapolis. The matter was talked over amongst us between sessions and some imaginative fellow conceived the idea of sending a telegram to Mr. X, asking him to come to Indianapolis at once. He was told in the wire that there was every possibility of forming a large stock company to explore and develop the wonderful cave in question.

Much to the surprise of all, Mr. X immediately replied by wire that he would be on hand, and within a few hours appeared at the League meeting. Enthusiastic? That is putting it mildly. He had had numerous letters from his ranger partner in Texas giving more details and expanding on the wonderful possibilities of the quantity of honey to be secured. A committee took him in charge and proceeded to go over the matter in detail. They could hardly think that he actually believed that such a cave existed, but, on closer questioning, it was found that his heart was set on developing the cave and thus making of himself a multi-millionaire.

At the banquet that evening Fred Muth acted as toastmaster, and as soon as the last course was finished he brought the matter up, introducing Mr. X to the guests, who numbered in the neighborhood of one hundred. Many notables of beedom were there, including Phillips, Paddock, Le Stourgeon, Weber, Muth, Root, Boyden, Hawkins, Woodman, Frank Rauchfuss, Jr., representatives of the glass companies, tin can companies, and in fact a large number who were interested in the advertising and selling of honey at that time.

The toastmaster introduced Mr. X to the gathering and gave a short description of the wonders of the cave and of the possibilities of dividends in case the corporation was formed to develop it. By special arrangement, several of those in attendance made speeches as to the wonderful chance it gave to everyone present to make a fortune for themselves. It was unanimously voted that a million-dollar corporation be formed at once and that stock immediately be sold. After considerable argument it was decided that each party present be allowed an opportunity of subscribing to the project. Each guest was introduced and each in turn made a short speech and named the amount that he would subscribe. Some whose enthusiasm ran high would subscribe as high as thirty, forty, or even one hundred thousand dollars, but when the subscription was too high the toastmaster would immediately call him down and only allow him a small sum, whereupon the subscriber would register a protest, and a battle of words would be on. Finally, however, the toastmaster would compromise and allow him only a reasonable sum. Others would tell how hard the seasons had been with them, how low the price of honey was, and how they were desirous of subscribing a large amount, but had nothing at all. In such cases others came to their rescue and offered to loan them if they would mortgage some of their property. In one case the beekeeper said that he had no money at all, but had a "tin lizzie," and that, although it coughed and wheezed and limped along on three cylinders, he felt sure it ought to bring $200. It was suggested that a mortgage be taken on it and as much stock be issued to this party as could be afforded.

Then came the selling of rights. One of the large glass companies immediately asked for the concession of manufacturing glass, for bottling of the honey as fast as it was taken from the cave. This concession was sold to them for fifty thousand dollars. The Elyria Glass Tank Manufacturing Company was sold the right for constructing a glass-lined pipe line from the cave to the glass company plant. Still another was given the concession of rendering the beeswax, the right, alone, selling for something like forty thousand dollars.

The repartee, jokes and apparently serious discussion went along all through the meeting, and was very rich, indeed, and all the time the crowd kept watching Mr. X, who sat at the right of the toastmaster. His face was set, his eyes alight, and his soul seemed on fire. He was taking it all in and registering the subscriptions as fast as made. While many of the jokes were raw and everyone could plainly see that he was being made the dupe, no one could believe that he actually swallowed it all, bait, hook, sinker, line, fishing pole, and the fellow holding it.

Through the whole performance the toastmaster kept a serious face and kept consulting Mr. X as to details, as to what he would prefer having done, and in all cases was told that as much stock as possible be sold. The meeting ended in a blaze of enthusiasm and everyone adjourned to the lower corridors.

Mr. X immediately sought out the telegraph office and, in spite of the remonstrance of several of us, wired to his friend in Texas that a big corporation of one million had been formed and that he would soon be down to Texas to start operations. Try as they could, a few of the more conservative members who took pity on Mr. X could not convince him that the matter was all a farce and that there was nothing to it. He was sold on the proposition, and no one knows, to this day, how he was affected when he actually woke up to the fact that he had been duped.

Ashamed of ourselves? Yes, we were, as we properly should have been, but not one of us realized that a human l ing could know so little about bees and honey as to swallow all the misinformation that was given at that meeting.

Wildcat honey? Yes, that was real wildcat honey.